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TABLE OF CONTENTS.

	PAGE.
Editorial:	
What Will the Shoe Prices Be?	143
Senator Lexow's Little Farce	144
Hose-Couplings, Hose-Bands, and Hose-Menders	145
Gathering Rubber in the French Congo (*Mrs. Martha Nehne*)	148
A Half Century of Submarine Telegraphy	151
New Goods and Specialties (*Illustrated*):	
An Electric Brush of Hard Rubber	153
Ruebsam's Rubber Muscle-Beater	153
The Ram Brand of Belting	153
"Grease-Spot" Trouser-Guard	153
The Geyser Hot Appliance	153
The Davis Cycle Brake	153
The Alpha Ventilating Dress-Shield	154
Portable Atomizer and Powder-Blower	154
The Automatic Prize-Fighters	154
A New Rubber Bicycle Grip	154
The New Ball Tire	155
The Tire Situation at Home and Abroad	156
Brief Abstracts of Recent Rubber Patents	159
Investigation of the "Rubber Trust"	161
The Crude India-Rubber Movement of 1896	164
Miscellaneous:	
Gutta-Percha for Dental Plates	147
India-Rubber in German Africa	149
Rubber Resources of Sierra Leone	150
Canadian duties on Rubber Clothing	152
Tennis for 1897	152
Rubber Compound That Does not Discolor	152
Deaths in the Rubber Trade	155
A Modern Rubber Stamp Factory	158
India-Rubber Cases in Court	163
A New Three-Roll Calender	163
Trade Marks for Crude Rubber	163
What the Shoe Factories Are Doing	165
The Latest Rubber-Tubing Machine	166
A Huge Piece of Suction Hose	166
Another Crude-Rubber Company	166
A Late Beginning in Garden-Hose	167
Random Notes from Pará	167
A Vehicle-Tire Company Fails	168
Trade and Personal Notes	168
Review of the India-Rubber Market	169

WHAT WILL THE SHOE PRICES BE?

THERE'S an opening for a merry war in rubber-shoe prices at the beginning of the new season, which dates always from the first of April. Whatever advantages the manufacturers may have derived from their combination five years ago, none has been greater than the stability which has been secured in the matter of prices, emphasized by the co-operation of the Boston Rubber Shoe Co. But the industry cannot longer be conducted without regard to the presence in the field of a new, strong, and aggressive element in the shape of a well-equipped factory controlled by a past-master in the business.

Mr. Banigan so far has kept his own counsel, but the trade will be surprised if, at the outset of his new enterprise, he should start hand-in-hand with the United States Rubber Co. in the matter of prices. What is he in the field for, if not for competition? And how is there to be much competition if all hands sell the same grades of goods at the same prices? Everybody knows how, in former years, the selling agreements between the rubber-shoe companies were likely to be violated first by the smallest, or at least the weakest, members of the compact. Then how easy it would be for the strong new concern at Providence to unsettle things by marking down rubbers.

President Converse has been understood from the beginning to be a shareholder in the United States Rubber Co., but of course this does not bind him to an agreement with that company as to prices. But it is understood that, whether or not there ever was a time limit to Mr. Converse's agreement on prices with the consolidated factories, the agreement is now at least binding only so long as he cares to have it so. Of course there cannot be three sets of prices, all different. Then, if there is to be any difference, will Mr. Converse be found on the side of the Banigans, who are suspected of coming into the trade to upset settled conditions, or with the other side, with whom he has worked in harmony in the past, and with whom he is interested as a shareholder?

If there is to be any fighting, the various parties are all able to stand a long siege. The United States Rubber Co. have been strengthening their reserves and pushing many economies to a practical conclusion, with an apparent eye to being prepared in time of peace for war. As for Mr. Converse's company, which is practically a family affair, a secret of its internal management was let out some four years ago, when, by a simple resolution, its capital stock was increased some $4,000,000 by a transfer of funds from the surplus account. There's no telling what may be the extent of that surplus now. Mr. Banigan not only is a man of wealth in his own name, but is doubtless able to attract to his side a formidable amount of the sinews of war. In a fight for the survival of the fittest, without present regard for profits, the various parties in interest could keep things lively for a long time to come, though it is not to be supposed that men of so much business sagacity would squander fortunes simply to get others out of a field in which the victor would find new competitors arising before he could turn around.

The first question that arises, then, is what new combinations are in prospect. The second turns upon the possibility of cheaper production of rubbers of good grades. Most manufactured products, within the past decade, have been reduced in price to a greater degree than rubber footwear. It must be admitted, however, that this has been preceded by a decline in raw materials, whereas the tendency of crude rubber, robbed of all speculative features, has been steadily upward. Such details as have been made public in the reports of the United States Rubber Co. have not encouraged a belief that profits have been heavy on the production of rubbers, and it is no secret that some rubber-manufacturers in other lines have been not a little uncomfortable of late because of the small margin of profit realizable.

Altogether the trade is in the position of expecting some surprises when the new shoe-lists are made public. The biggest surprise of all would be an agreement on prices among all hands.

SENATOR LEXOW'S LITTLE FARCE.

IT was testified by Senator Lexow, before his own "trust" investigating committee in New York lately, that the United States Rubber Co. at one time destroyed $50,000 worth of valuable rubber plant, in order to lessen the production of goods, and he testified to many other things not more creditable to a man of intelligence, including the assertion that the fifteenth part of 65 per cent. of a thing is 25 per cent. of the whole. Now it happens that the rubber-manufacture is in the hands of men, many of whom knew its details well when the honorable senator had not advanced beyond exercises on a rubber teething-ring, who will rely upon their own practical knowledge of the business rather than upon testimony from an outside source. As for the remainder of the population, it probably matters little if Mr. Lexow happens to get his testimony before them in the newspapers which have already told us that "para" is not rubber until it is vulcanized. The main thing with the general public is the getting of an honest quality of rubber goods at an honest price, and nothing that was brought out in the so-called investigation leads us to believe that the forthcoming legislative report will show either that the "rubber trust" is selling poor goods or that its prices are higher than its competitors charge.

What the honorable senator regarded as especially iniquitous was that certain factories owned by the United States Rubber Co. had ceased to be operated. Very little study of the India-rubber trade is needed to reveal the past existence of some very important factories which have totally disappeared from the face of the earth without the agency of any trust. Only this month it is announced that there is to be a formal winding-up of the old Union India-Rubber Co., which in its day was second to no other concern in the world. Then where are the Hayward Rubber Co., the Newark, the Pará, and a lot of other rubber-shoe concerns no longer heard of? Whether a number of factories are controlled by one or a dozen corporations, those which in time prove to be the least conveniently located, or least fitted for economical operation, must give way to the others. To the senatorial mind it seemed impossible that a company having control of an undesirable plant, and letting it go while acquiring one more desirable, should be influenced in the transaction by any motive other than "robbing the public." Such a mind probably would find robbery of the public in the supplanting of sailing ships by ocean steamers, or stage-coaches by railway trains.

Another point on which Chairman Lexow testified with particular emphasis was the unlawful "restriction of production." This was the joke of the whole proceeding. It might be possible for a corps of high-priced selling-agents to be kept together to prevent their selling rubber shoes, but so heartless a monster as a "trust," if it wanted to stop sales, would more likely stop the salaries of these agents. It may be expected that the report to be made to the New York legislature will dwell at length upon the closing of a factory at Colchester, for instance, with scant reference to the addition of any of its plant to the factory at Bristol, and no such statement as appears in the Bristol (R. I.) *Phœnix* of February 23, viz.:

> The mill of the National India Rubber Co., during the four years in which it has been controlled by the United States Rubber Co., has paid to its employés a much larger sum than it did the four previous years.

So far as Mr. Lexow's share in the matter is concerned, it would have to be said, by the most disinterested chronicler, that he brought out no facts of value or interest in relation to the India-rubber trade. Nor do we hesitate to predict that his report will be wholly barren of practical suggestions relating to it. The business is likely to be carried on in future, as in the past, by men having some knowledge of it.

One point upon which the senator listened rather impatiently to Mr. Flint, while he occupied the witness chair, related to the advantages of concentration or centralization of industries in opening the way to a larger export trade. Whenever a period of dullness falls upon any line of manufacture, it would be desirable if an outlet for a part of the product could be found abroad. But producers working singly and alone are less apt to be able to make a foothold in strange markets, even if the disadvantage did not exist that labor is so much cheaper in most competing countries. By concentration, and the employment to the utmost of economies in production, it may be possible, while paying the highest wages in the world, to produce goods by machinery more cheaply than any hand labor or any machine labor on a small scale, and thereby for America to undersell the whole world. This is an idea totally apart from the direct investigation of the rubber company, and is repeated here as worthy of consideration, especially since it comes from the largest exporter of American manufactures.

THE Boston Woven Hose and Rubber Co. declared a regular quarterly dividend of 2 per cent., payable on March 1, to stockholders of record on February 21. The capital stock is $900,000. The assets reported on February 2 were: Real estate, $330,945; cash and bills receivable, $423,159; merchandise, $722,872; patent rights, $1000; total, $1,477,976.

HOSE-COUPLINGS, HOSE-BANDS, AND HOSE-MENDERS.

By Gustav Heinsohn.

A GOOD example of the way in which the introduction of the use of India-rubber into any field may lead to the employment of a large number of auxiliary materials and devices is afforded by the trade in garden-hose—an article relatively of small importance, though forming in the aggregate a branch of the trade which no manufacturer of mechanical rubber goods would think of ignoring. Comparing one year with another, the garden-hose trade may now and then be described as "dull," but, nevertheless, the use of this product is constantly on the increase, and must continue so until some new material is discovered which will serve as an acceptable substitute for rubber. Not only is there a continual increase in the number of towns in which the use of garden-hose becomes practicable and desirable, but the number of users in the older towns is of more rapid growth than the gain in population. And when the use of garden-hose is no longer confined to those towns having waterworks, but comes into demand on every farm and market-garden, and in every orchard and vineyard in the land, so that its advantages shall extend to every tree and plant under the American flag, there will still be new fields for garden-hose in the foreign trade.

There is no article of rubber manufacture which is more in the nature of a staple, and what makes the trade of more interest to the dealer is the fact that with every length of it that is sold, there must be attachments and fixtures, of which the greatest possible variety is offered for sale. In a recent issue of THE INDIA RUBBER WORLD a page or more was devoted to the mere enumeration of the features of the leading styles of lawn-sprinklers now on the market. Here will be attempted a similar treatment of the subject of hose-couplers and hose-menders.

As in the case of lawn-sprinklers, there is a wide variety in hose-couplers. There are differences due to the different requirements, as well as a range of prices planned to suit buyers who are willing to pay more or less for goods of this class. Here, as in not a few other lines of trade, the buyer of an article for a given purpose for the first time may be influenced by the mere consideration of price, only to learn that, when he is again a buyer, it may be good economy to pay more and get a better article. With relation to hose-couplers, however, it happens that some of the devices now sold at a low price are capable, under favorable conditions, of rendering excellent service.

It is desirable, in the first place, that a coupler for garden-hose—or any other hose, for that matter—should be secure. It is exasperating, under any circumstances, to have a hose-fitting give way while in use, while in the case of fire-hose incalculable loss might result from a break at a critical moment. Of course everything does not depend upon the coupler; the hose, for instance, must be of good quality to make a satisfactory union certain. And a device of particular shape is desirable under particular conditions, as, for instance, a "crook" to avoid the bending of hose to too great an extent in some kinds of work.

Perhaps the most satisfactory treatment of this subject will be to notice, one by one, the principal features of each of several designs of hose-couplers and hose-menders offered by the leading houses in the trade. There are some others, but it does not happen to be convenient to present cuts of them, but what follows embraces most of the differences in construction of these goods.

The "A. & W." (Adams & Westlake) hose-band is shown in Figures 1 and 2. The first of the views shows the band "as it comes"; the second, the band as applied to the hose for mending a break. No special tools are required for using this band. The manufacturers' directions for its use are simple: "Engage the lever in the farthest notch it can reach, press down lever, then hammer down ears and the lever is locked. The lever cannot slip."

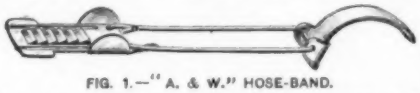


FIG. 1.—"A. & W." HOSE-BAND.

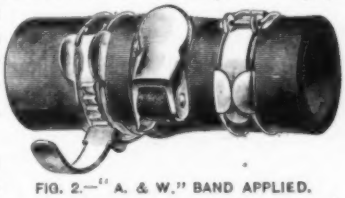


FIG. 2.—"A. & W." BAND APPLIED.

The Adams & Westlake Co. manufacture couplings for old and new hose, and attachments not only for coupling lengths of hose together, but for connecting them to faucet, ground-pipe, or "hose-crook." The latter, by the way, is one of their specialties the manufacture of which is based upon the idea that, in ordinary cases, hose does not wear out from the friction of the water, but from the constant bending and twisting to which the hose is subjected. By the use of a crook, attached to the ground-pipe or faucet, bent in the right direction, the bending of the hose is avoided and its life and usefulness increased.

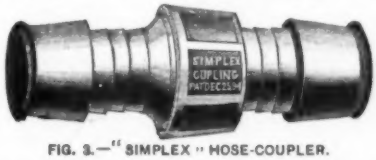


FIG. 3.—"SIMPLEX" HOSE-COUPLER.

No bands or clamps are required in using the "Simplex" hose-coupling and mender, manufactured by King & Knight. They are shown together here for the reason that both embody the same principle of construction—the cone-ends, being under-cut, form a perfect anchor, embedding themselves in the rubber tube, and cannot be blown out under hydrant pressure. It is claimed to be especially adaptable to use in steam-hose. A wide range of other hose goods is manufactured by the same firm.

FIG. 4.—"SIMPLEX" HOSE-MENDER.

The Sherman hose-coupling is shown in Figure 5. It is stamped from heavy finished brass, with extra long tubes, full water-way, and heavily corrugated for gripping the hose. There is an extra heavy and strong movable nut, with a knurled flange affording a good grip for the hand. It has standard heavy die-cut threads, to fit all fixtures. Sherman's mender-tube (Figure 6) has the same general characteristics, so far as they are applicable to an article of this class. It is heavily corrugated and does not cut down the water-way, and the screws are cut with a view to

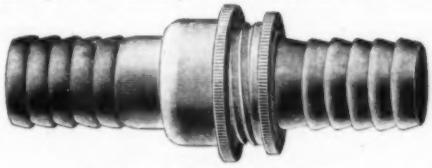


FIG. 5.—SHERMAN HOSE-COUPLING.

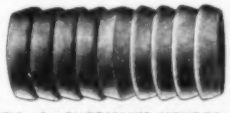


FIG. 6.—SHERMAN'S MENDER-TUBE.

being pushed readily into old hose. It can be fastened in hose with either clamps or wire bands. Figure 7 shows Sherman's double brass clamp and mender-tube, which is claimed to be strong and durable, and can be used any number of times. It is cheaper than wire bands and iron tubes. Only one bolt is used, which is adjusted with a screwdriver.

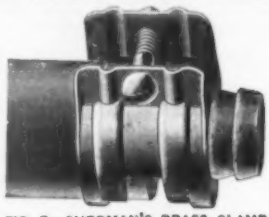


FIG. 7.—SHERMAN'S BRASS CLAMP AND MENDER-TUBE.

For the purpose of better describing his "Double Band Hose," William Yerdon first gives an illustration of the old way of clamping hose. This is shown in Figure 8, where the arrow indicates the weak point of the hose treated by this method; it is almost certain to leak in time. This feature is avoided in the Yerdon clamp, shown in Figure 9, by means of a tongue marked *X*, the use of which is obvious. Besides, the old style of clamp afforded but one solid band, in comparison with which a double band (marked *Z*), pressing the hose closely to the corrugated surface of the coupling, is claimed to have a decided advantage. The band is provided with shoulders (marked *Y*), to facilitate its application by means of a special vise, or "adjuster," which costs from 25 to 50 cents. The metal in these bands is a mixture of copper, tin, and aluminum, designed with a view to strength and the prevention of rust. Special sizes of bands are made for railroad hose of different kinds, brewers' hose, suction-hose, hydrant-hose, etc.

FIG. 8.—OLD-STYLE HOSE-CLAMP.

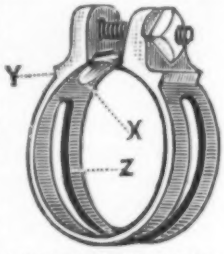


FIG. 9.—YERDON'S DOUBLE BAND.

Sherman's hose-clamp, shown in Figure 10, is a pliable band of finished brass, warranted not to rust, and can be opened and closed around the hose with the fingers. No special tool is required for applying it, it being necessary only to use a screwdriver to tighten the bolt.

FIG. 10.—SHERMAN'S HOSE-CLAMP.

The "Hub" hose-band, manufactured by King & Knight, which is not illustrated here, has a tongue designed to prevent the pinching of the hose, but differing in construction from both the Yerdon and Sherman clamps.

The small cut of a hose-clamp shown as Figure 11, is from the catalogue of Peck Brothers & Co. (Boston), who are manufacturers also of couplings and other hose goods in metal.

FIG. 11.

The "Double Cinch" hose-band and mender, made by the Clayton & Lambert Manufacturing Co., is shown in Figure 12. It differs from all other clamps in that, while they employ screws to draw the band together, the ends of the "Double Cinch" band pass each other before tightening and the screw pushes these ends farther around the hose, making the band draw evenly and conform nicely to the hose.

In connection with this band the same company manufacture a hose mender-tube of seamless brass, easy to insert, giving a full opening, and impervious to rust. The only tools for the application are a knife to cut the ends of the broken hose even, and a screwdriver to tighten the screw.

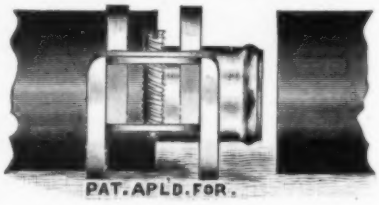


FIG. 12.—"DOUBLE-CINCH" HOSE-BAND.

"Hose-bands," say one firm of manufacturers, "can be made of common hay-baling wire, copper, tinned, or galvanized wire; in fact, any annealed wire that can be handled by the pliers used." But there are not only definite qualities of wire hose-straps used, but definite styles or designs used, as in the case of the Caldwell make, illustrated in Figure 13. These cuts will sufficiently explain themselves.

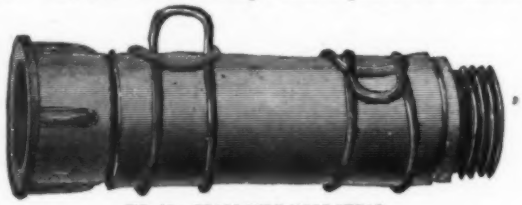


FIG. 13.—BRASS WIRE HOSE-STRAP.

The Clayton & Lambert Manufacturing Co. have something to say about pliers used for mending hose. The handles should be long, to give the user as much purchase as possible; the jaws should open wide; there should be a flattened surface in the rear of the jaws, on which to straighten wire or form it into staples; the cutters should be strong enough to cut any wire used. The pliers sold by this firm are so made that with the same pair a right joint can be put on hose of different sizes and of a different number of plies.

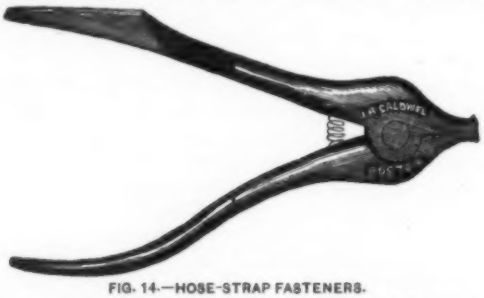


FIG. 14.—HOSE-STRAP FASTENERS.

Among the manufacturers who put up garden-hose repair outfits are C. E. Hudson & Co., who make the well-known Hudson hose-mender shown in Figure 15. The set complete consists of metal pliers, 6 brass mender tubes, and 20 brass wire bands, all put up in a box, with directions for use. One

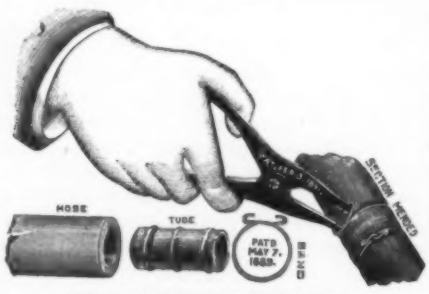


FIG. 15.—HUDSON'S HOSE-MENDER.

size of the wire bands will answer for three-ply or four-ply hose. The advocates of this style of mender urge, as an advantage, that it "will not tear the rubber lining from the hose like screw-menders."

A low-priced hose-mender has its advantages. "The trouble has always been," say F. E. Kohler & Co., in their circular, "it was cheaper to buy new hose than to buy the high-priced brass

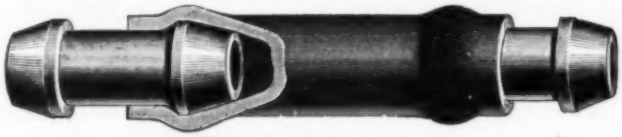


FIG. 16.—"LITTLE WONDER" HOSE-MENDER.

or iron menders to repair with." They have brought out what they term the "Little Wonder" hose-mender, which consists simply of a piece of wood, shaped and applied as shown in Figure 16. All that is necessary to do, to make a joint, is to cut the ends of the hose square and insert one end of the mender in each end of the hose. The cone ends of the mender, under cut, form a good anchor for the rubber. No bands or wire are required to keep it in position.

The last item to be illustrated is the "Quick as a Wink" hose-

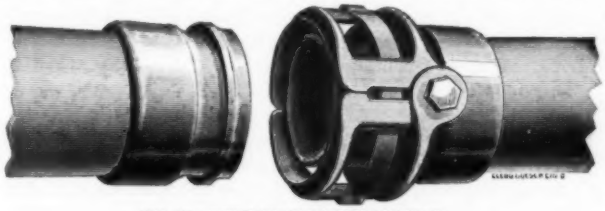


FIG. 17.—COUPLING READY TO CONNECT.

coupling, manufactured by W. J. Clark & Co. Figure 17 shows the coupling all ready to connect. To effect a connection the two parts are brought together and the head of that on the left will force the clamping jaws outward in opposite directions rgainst the tension of the spring. The moment the grooved portion is opposite the outer ends of the jaws they will close

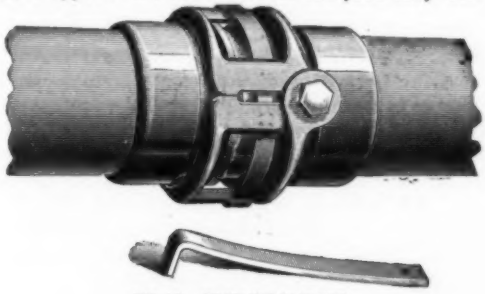


FIG. 18.—COUPLING IN PLACE.

around the head, and the inwardly projecting edges of the outer ends of the jaws will engage with the shoulder groove and it will be securely coupled. The connection is made water-

FIG. 19.—METHOD OF DISCONNECTING COUPLING.

tight by means of the rubber tube shown inside of the jaws at tached to the portion on the right. Figure 18 shows the coupling in place as applied to two lengths of hose. Figure 19 shows the method of disconnecting, which is simply to take a flat key and place it in the slot between the two jaws. This device is intended for use for both lawn-hose and fire-hose.

One final word about hose-coupling, and hose-menders as well, is that they should be simple in construction, having no delicate parts to get out of order, and competent to stand rough usage and severe strain.

GUTTA-PERCHA FOR DENTAL PLATES.

THE use of Gutta-percha in dental work came up for discussion at the recent annual meeting of the Sixth, Seventh, and Eighth District Dental Societies of the State of New York, as reported in *The Dental Cosmos* (Philadelphia). Dr. Richard Kessell, of Buffalo, in a paper on mechanical dentistry, spoke of the many failures in dental operations, including the breaking of artificial plates. The last he thought could be prevented to a great extent by using a material which he thinks much superior to rubber in durability, and which he uses to make what he calls the unbreakable plate, described by him as follows:

"To make a durable and lasting artificial plate it is necessary to take a perfect impression, then a bite that is absolutely correct. With these accomplished, the battle is half won. With half a success, however, he was not satisfied, and for the last three years he had been experimenting with a material which was used years ago, but for some reason abandoned. This material is the vulcanite Gutta-percha, prepared by Doherty, of Brooklyn. The working of the material is nearly the same as rubber, only a few points must be observed. First, soften the Gutta-percha in hot water; have your case heated also, then it will pack like butter. Do not cut any waste-gates, as this material requires constant pressure, and do not use spring bolts. Vulcanize about two hours at 300° F., and let the case cool off slowly and thoroughly before opening it. It may be vulcanized exactly like rubber, say one hour at 320° F. There is nothing like this material for repairing rubber plates. If you use English pinless teeth, pack the Gutta-percha into the holes of the teeth and finish up with rubber if you choose."

The subject was brought before the convention because the results of the use of this material had been so gratifying to him. He had never been obliged to repair a single case packed with Gutta-percha, and he had been using it over three years. The Doctor showed samples of vulcanized Gutta-percha $\frac{3}{16}$-inch thick, perfectly solid; also a plate on the model on which it was vulcanized, showing that there was no shrinkage. For a final test the Doctor threw one of these plates on the floor and stood on it with his full weight without breaking it. The only disadvantage this material has, as far as the Doctor could see, was that it has to be used without waste-gates, and if there is not sufficient material or there is insufficient pressure the plate becomes porous.

At the conclusion of Dr. Kessel's talk several of the older members related their experience with Gutta-percha. It had been taken up to evade the payment of the license exacted by owners of the Goodyear patents from those who used India-rubber, but it was dropped when the patents expired. No one seemed to know just why it had been so generally abandoned.

Now that the leather manufacturers are busy, the rubber cement business is taking on a decided boom.

GATHERING RUBBER IN THE FRENCH CONGO.

*By Mrs. Martha Nehne.**

I.—FROM THE NEW YORK SUN.

IN the months of March and April, during the rainy season, one sees busy life in the native towns of the French Congo. The men are preparing to go to the bush to cut rubber. Every woman and child seems to have something to do, and even the men do not lounge about as usual, but are sharpening their knives and *machetes* and putting their guns into proper trim. The women are digging *cassava* and some of them are washing it and preparing *chiguanga*, or native bread. Others are cleaning the *cassava* with knives and tying it into *mattets* made from palm leaves. This kind of *cassava* is roasted over the fire and eaten warm, while the bread is eaten cold and is mostly used on the road. The men carry their guns so that they may be prepared to kill the game which abounds in the forest.

When all is ready a drunken carousal and dance are given the night before the start by way of saying farewell to the villagers left at home. Sometimes a good place with plenty of rubber plants is found after a march of two or three days, but oftener the journey takes a week or more. In this case the men keep carriers on the road with food for them, because there is nothing to be had in these parts with the exception of game.

The rubber in central Africa is not a tree, but a vine, often three or four inches in diameter. This vine generally climbs up the tallest trees, and the natives often use one of the vines to ascend the tree. After the branches are reached, which in most cases are at least fifty feet from the ground, the men proceed to cut the vines away at the top, leaving only one for their descent, and this one, if possible, not a rubber vine. It seems strange that the natives cut away the rubber plants and so destroy them instead of tapping them, but they are too lazy to learn any other way.

After the vines have fallen they are cut into lengths of three or four feet, and the juice is collected into iron pots. This is a tedious job. The piece of the vine is held over the pot, first by one end, then by the other until the juice ceases running. Then the piece is cut again to get at any juice which may have been left in the middle. After a pot is nearly full a rest is taken, and this juice is boiled for nearly two hours, and, during the boiling process, is mixed with the juice of other vines and some lime juice, so that the mixture is more sticky and easier formed into balls.

As soon as it cools down sufficiently to be handled the hardening rubber is shaped by winding it at first around a stick. After a bit the stick is pulled out and the ball is re-wound to finish it off. In some places these balls weigh three pounds or more each: in others, five of them make a pound. The purity of the rubber depends much upon how much other juice has been added. The best and purest is that obtained from the juice without boiling. This is only found in the shape of bracelets, because the natives wind the juice as it runs out around their wrist and let it dry there. When perfectly dry it slips off easier. This would be transparent rubber if the skin and fingers of the natives were not so very dirty.

The natives often used to put foreign substances, such as small stones, palm-nuts, and little balls of grass into the rubber ball to make it heavy. They were soon found out, and every ball is now cut through the center to reveal its mixture. Often the rubber is buried for some days because it draws the moisture from the ground, which adds to the weight. Cheating is resorted to because the pay is so poor. It takes a party of eight or ten men and boys six to eight weeks to gather from eighty to one hundred pounds of rubber. The value of this, if all is first-class, is from 200 to 250 yards of cotton cloth or forty gallons of rum or three or four flintlock guns. Surely this is poor pay for this kind of work.

Still, the natives rejoice greatly if the men from one town return with 100 pounds. It seems like a fortune to them, because they need so little that civilized people crave and pay for. When this little fortune is spent and the weather permits, another trip is undertaken to the rubber region.

II.—FOR THE INDIA RUBBER WORLD.

THE India-rubber trade throughout French Congo is carried on by European houses, principally English, German, and Dutch. Of late years French merchants have opened trade stations in some parts, and the trade in the far interior, where no merchants had ventured before 1895, is in the hands of the French government, no foreign traders being allowed there. The French have tried their best to exclude all others, but the French houses generally soon fail, as it seems they are not such good traders. The trade on the Quillo river is in the hands of a French company, the Dutch house which controlled this region before having sold out to the French firm. It was the only thing left to do, since the government had given the monopoly to these people. This firm agreed to make the whole river navigable and thus open a water route to Stanley Pool. The journey to Stanley Pool took formerly a month by the overland route, each carrier bearing 56 pounds. Now it takes less than half the time, and steamers and other boats convey many man-loads at once to a place about three days from the Pool. This is such a great advantage to the government that they willingly gave anything the company asked in return. The work was to be done by January, 1896, and I presume that trade of all kinds is flourishing there now.

Other places of export are Eloby, Gaboon, Setta Cama, Nyanga, Mayumba, Quanquatty, and Loango. The first-mentioned river is about four hours from Loango, to the north. Eloby is situated on an island north of Gaboon and is a Spanish port, but handles rubber collected in the French Congo. Mayumba and Loango were the principal rubber stations until 1885, but since then their trade is growing less.

All these places are the seats of large trading stations, called "factories." There is not much direct trade done at these large houses, but they are necessary to carry on the business with the firms in Europe. The chief agents are generally in charge of these factories. In Gaboon and Loango money is used, but at the other places and in the interior goods are bartered for rubber.

The European ships bring powder, flint-lock guns, salt, cloth, knives, plates, cups, spoons, forks, buttons, men's clothing, shirts, hats, umbrellas, neptunes (a copper pan to cook salt), pomades, perfumes, lamps, ironrods, rum, and many other articles. All these are used in rubber trade, but rum and gin are mostly used along the coast. One reason for this is that rum is about the cheapest thing in market and the natives are often compelled to take it even if their preference is for other things.

* The writer of the information printed here is an American lady who for the past nine years has been a missionary in the Mayumba district of the French Congo.—THE EDITOR.

On the coast, too, tobacco is used, but this is not saleable in the interior, the natives there growing their own. Nowadays the alcohol is sent out and the rum is manufactured there. Often less alcohol and a great deal of red pepper is used and the natives never know the difference as long as the stuff "burns" properly.

Smaller factories are dotted all over, some a few hours, others three or four days from the coast. The larger of these are presided over by young white men from Europe. Here more rubber is bought than at the large factories, but the bulk of it is brought in through native traders. This is done in the following manner. A native brings 10 pounds of rubber or more to a white man's factory. The price paid is one native dollar for 2 pounds, the native dollar being worth from 10 to 36 cents, according to the article paid for it. In the Mayumba district there are three kinds of rubber—ball, mixed, and flake. The first is bought at 2 pounds to the dollar; the other two at 3 pounds or more, according to quality. Besides the pay for every dollar's worth, a present is made of one-half bottle of rum.

After the trade is effected and the present given, the native asks for "trust," which means a loan to buy rubber with. If he bears a good name, he gets from eight to ten native dollars in cloth and rum (always mostly rum), and also a couple of bottles with which to buy food on the road. Now he is ready to start on his expedition. First of all he goes to his town and indulges in a drunken carousal. After all the rum is finished and his wives have made food ready for the journey he proceeds with some boys to one of the interior towns, where he buys rubber with what money he has, and borrows more if he can. After three or four weeks he appears before his "white man." If he brings the number of pounds required or more, he receives the usual present of rum and is asked if he wants more trust. He certainly does, for there probably is not a native in all French Congo who would not take trust if he could get in This time he gets more, and if he again does well, he is soon put in charge of a small station in the interior. Now he has two or more men allowed him to help buy rubber and carry his produce and goods back and forth.

To make trade possible among Europeans and natives a middle man is needed, called "linkster," who talks both languages. This man has a rather hard lot. The natives whisper to him, "that if he sees that they get what they want and enough of it, he shall have part of the gain," while the white man demands that the rubber shall weigh a little lighter than it is, so the poor fellow is between two fires. He soon learns to dodge both and to cheat both sides if he gets a chance. The rubber, when it is received at the smaller stations, is thrown into a large cask filled with water and left there until it is taken to the coast. This is done to keep it from drying out, in which case the clerk would be the loser. About once a month it is taken to the large factories. There it is placed into a big tub or canoe and washed and sorted over, each kind being put by itself. This is a very dirty job and done by black people, called factory boys. Generally one or two clerks do the picking over and watch the performance, else there would be too much stolen. Right after washing, the rubber is put into casks and these are headed up, so that there is no loss of weight. After the casks are closed they are whitewashed on both ends and marked with coal tar, and they are ready for market.

The English houses trading in French Congo are Hatton & Cookson, Thomas E. Tomlinson & Co., and John Holt, of Liverpool; Carl Woermann & Co. and J. O. Gutschow (14 Rathhausstrasse), Hamburg. The seat of government in French Congo is at Libreville, Gaboon.

INDIA-RUBBER IN GERMAN AFRICA.

IN an official report on "The Products of the German Colonies and their Industrial Value," Dr. O. Warburg writes: In the export of caoutchouc only three of the German colonies of tropical Africa are of importance. Caoutchouc is the chief article of export from Cameroon and German East Africa. Although in tropical Africa a few other plants (*Ficus* and lately *Kickxia*) have furnished serviceable caoutchouc, in our colonies, rubber has been gained almost exclusively from the *Landolphias*, especially *L. Kirkii* and *L. Petersiana*, in East Africa, and *L. Comorensis var. florida*, in the Coast colonies. In the northern part of the Cameroon district only the milky juice of an unidentified tree is turned to account. The exports were:

TOGOLAND.

	Pounds.	Value.
In 1892	81,400	$33,500
In 1893	63,800	24,750
In 1894	68,200	29,000
In 1895 (excluding first quarter)		41,000

[It must be taken into consideration that only a portion of the caoutchouc obtained in Togo is exported to German ports and that therefore the figures as given here are too low by half.]

CAMEROON.

In 1892	710,600	$256,000
In 1893	910,800	356,750
In 1894	880,000	326,000

GERMAN EAST AFRICA.

In 1891	521,000	$240,000
In 1892	686,000	282,000
In 1893	500,000	233,000
In 1894	415,000	247,000

That this enormous quantity of 1,363,200 pounds to the value of $602,000, can only be obtained by the destruction of countless caoutchouc trees, is plain, as no method excepting the cutting off of the trunks has as yet been discovered, and this indicates that before long the export must decrease unless heroic measures are adopted to check this wholesale destruction.

To obtain caoutchouc advantageously from plantations has so far proved a failure. The many experiments in other countries have found their followers here. In Togo the d'Almeida Brothers, last year, planted 1500 Ceará rubber-trees, for shading their coffee-plants. The Kpeme Plantation Co. contemplate making a caoutchouc plantation in the vicinity of Togo. Experiments with these plants as shade trees in Cameroon (Victoria) had to be abandoned as they were damaging the coffee trees. The Pará caoutchouc-tree is now being experimented with. In German East Africa Perrot planted, on the Mkulumuzi plantation, owned by the West German Trading and Plantation Co., 10,000 Ceará caoutchouc-trees, and the v. St. Paul plantation have put out 30,000 caoutchouc-plants.

* * *

FROM other sources the exports of India-rubber from German East Africa are found to have been for 1895, as follows:

To—	Pounds.	Rupees.
Germany	156,115	181,905
Great Britain	17,600	25,766
Zanzibar	339,665	475,589
Total	513,380	680,260

Converting the rupee at par this valuation would be equal to $341,630, or, at the present value in the United States currency, only $157,833.

* * *

AT the industrial exhibition in Berlin the New York-Hamburg Rubber Co. exhibited crude India-rubber from the German-African colonies (Lindi, Togo, Lome, Cameroon, Batanga) their successive manufacturing processes (washing, drying, grinding,

mixing with flowers of sulphur, vulcanization), and, finally, samples of the various products and manufactures, both of hard and soft rubber. Among the many efforts at civilization in the German colonies named, it is of especial interest to the Togo district that the itinerant teacher Möckel has been instructed to pay particular attention to the gathering of rubber. Likewise the impending agricultural exhibition, which, according to the report of the American consul, will be held shortly in Sierra Leone, must prove of especial interest to Africa's entire rubber production. Prizes have been offered for the best exhibits, and it is calculated thereby to stimulate an interest among the natives in the produce of the colonies.

RUBBER RESOURCES OF SIERRA LEONE.

THE India-rubber resources of the British protectorate of Sierra Leone, West Africa, received special attention from the colonial governor, Colonel Frederic Cardew, C. M. G., during his recent prolonged tour in the interior, an account of which has been presented to the legislative council and printed in the Sierra Leone *Weekly News*. It was the third tour undertaken by the governor within three years, each over a different route, and involving in all some 1875 miles of travel. As a result, the extent and direction of the water-courses are now much better understood, and the extent of the forests more accurately known, especially in the valley of the Mano river, forming the boundary between Sierra Leone and Liberia. Much of the governor's latest route was through territory never before visited by white men.

"Though the indigenous products of the protectorate may not be superabundant," writes the governor, "still, I believe, partly from want of cheap means of transport, a lack of enterprise on the part of the traders, the ignorance of the natives in the methods of gathering and preparing their products, such as India-rubber- and palm-oil, and their paucity of wants, not nearly half the products of the country are ever brought to the markets. There are large tracts of forests with abundance of rubber and valuable timber awaiting exportation. They have been in no sense explored, and they only require intelligent and systematic methods for gathering the rubber to yield their wealth to the first comer who has the necessary enterprise."

Referring to a certain district traversed during his late tour, he says that the extent of forest land within it may be computed at not less than 600 square miles. Along the greater portion of his route the forest is of some eight to ten years' growth, the former cultivators of the soil having disappeared on account of the activity of slave-raiders at one time. But in many parts of the district virgin forests still exist. It is of particular interest, however, to learn that "even in the forests of recent growth there is an abundance of rubber." This is contrary to the accepted view that the permanent disappearance of the African rubber creepers is the inevitable result of the felling of the virgin forests. This was the opinion expressed by G. F. Scott Elliott, whose official report on the botany of Sierra Leone was reviewed in THE INDIA RUBBER WORLD of November 10, 1894.

Unfortunately Governor Cardew's enumeration of rubber-bearing species does not render their identification possible. He does not even quote the same local names as those given by Mr. Elliott, whose observations were made in a different district. The report continues:

"Three kinds of such [rubber] plants were pointed out to me. Two were vines called, respectively, in the Timni language 'lilibue' and 'nofe,' and the third a tree called in the same language 'kewatia.' The 'lilibue' yields the choicest rubber in the protectorate. In gathering it, incisions are made in the bark of the vine, which is not, however, always cut down. In the case of the 'nofe' vine, it is invariably cut up into small pieces of about six inches in length, and thus completely destroyed. The 'kewatia,' *i. e.*, the rubber tree, appears to grow rapidly, and in eight or ten years to attain a girth of from two to three feet, but the tree, however, like the 'nofe,' is also destroyed in the process of gathering its rubber; it is felled and the bark ringed at intervals of about six inches along the trunk. The rubber appears to be treated in a different way to that of the vines; the latter is coagulated with lime juice, but the rubber which exudes from the rings cut in the tree is placed in hot water, on the surface of which it coagulates, and is then cut into strips, which are formed into balls for the market."

The governor considers it absurd that large trees should be destroyed for a paltry few ounces, or even pounds, of rubber, and urges that steps be taken to instruct the natives in better methods of rubber gathering, before greater damage has been done to the forests. An account of the methods of preparing Pará rubber for market was published at the recent agricultural exhibition at Sierra Leone, and the authorities have since drawn up "an account of other processes which may be suitable to the rubber industry of this colony." The natives of some of the districts appear to be ignorant not only of methods of rubber-gathering, but also of the value of rubber. "If the traders," says the governor, "who purchase the rubber and other indigenous products would inform the government in what direction they consider reforms should be introduced in the prevailing systems of gathering such produce, the government would, I feel sure, lend an attentive ear to their suggestions."

* * *

SIERRA LEONE rubber has long figured in the English market, and is regularly quoted in New York, although Sierra Leone grades have entered less into consumption in the United States, proportionately, than Accra and some other African sorts. Kramrisch & Co. (Liverpool) have supplied THE INDIA RUBBER WORLD with the following statement of the imports into Great Britain of Sierra Leone rubber for six years past, though it may be said that not all the rubber thus classified is the product of the Sierra Leone protectorate. The figures given are somewhat greater than the amounts credited to Sierra Leone in the British official trade reports:

	Pounds.		Pounds.
In 1891.....	2,275,840	In 1894.....	1,944,320
In 1892.....	2,076,480	In 1895.....	2,222,080
In 1893.....	2,352,000	In 1896.....	1,944,320

Kramrisch & Co. further report: "Rubber from Sierra Leone played an important role during the past year. The rubber coming from that district found increasing favor among manufacturers, but contrary to expectations the receipts from Sierra Leone decreased, causing a considerable advance in price. The arrivals of Sierra Leone rubber [in England] during the first six months of 1896 averaged about 110 tons per month, of which quantity a goodly proportion was of the "red" unsoaked kind. The average arrivals during the latter six months were only about 35 tons per month, of which only a trifling quantity consisted of that red quality most in demand. Prices for the latter have therefore steadily advanced, 2*s.* 4½*d.* being the highest price paid."

In comparison with the figures given in the last paragraph, it may be added that for several years past the average monthly arrivals in England of Sierra Leone sorts have been 106 tons during the first half of the year, and 44⅓ tons during the latter half.

A HALF-CENTURY OF SUBMARINE TELEGRAPHY.

What the Discovery of Gutta-Percha Has Made Possible.

THE presidential address of Sir Henry Mance, C.I.E., M.I.C.E., at the twenty-fifth annual meeting of the Institution of Electrical Engineers, in London, on January 14, was devoted largely to the subject of submarine telegraphy, a field in which he has been long engaged, and in which he has won high honors. By way of introduction the speaker said: "I suppose I am one of the few who can say that they have assisted at the manufacture of a cable, the laying of it, the working of it, its subsequent repair on nearly 200 occasions, and, finally, more than twenty years afterwards, had entrusted to them the duty of laying a new cable in its place; that is to say, I have been closely associated with a submarine telegraph cable [the Persian Gulf] from its infancy to its old age."

The earliest record of a subaqueous line is that of the experiment made by Baron Schilling, who, in 1812, exploded mines across the river Neva, using wire insulated with India-rubber. It would seem therefore, that Schilling deserves the credit of being the first to suggest the employment of insulated conductors under water. In 1838 Colonel Pasley, R.E., made experiments at Chatham, to demonstrate the practicability of telegraphing through lines under water. In 1839 Dr. O'Shaughnessy made a series of experiments across the Hooghly. In 1840 Professor Wheatstone demonstrated before a committee of the House of Commons a method for establishing telegraph communication from Dover to Calais. In 1842 Professor Morse laid down in New York harbor an insulated wire for telegraphic purposes. In 1845 Ezra Cornell laid a twelve-mile cable in the Hudson river; this cable worked well for several months, until broken by ice. The earliest record at Somerset House of any submarine telegraph company is dated June 16, 1846, when Jacob Brett and Alexander Prince obtained a renewal of their provisional certificate of registration for the General Submarine and Oceanic Telegraph Co. The first concession connected with international submarine telegraphy was also granted to Jacob Brett in 1847, that is to say, fifty years ago, so that this year we may fairly be said to be celebrating the jubilee of the inception of *international* telegraphy.

The adoption of insulated conductors for *underground* wires, both in Prussia and England, may have contributed to the development of submarine telegraphy. The value of Gutta-percha as an insulator began to be recognized about 1847; and we find that in 1849 an English company obtained a charter from the French government, granting to them the exclusive right of sending telegraphic intelligence between England and the French coasts. The concession was conditional on communication being established by September, 1850; and, with the object of preventing its loss, a single wire, invested with a thick coating of Gutta-percha, and sunk by means of leaden weights, was successfully laid, and messages transmitted from coast to coast. The core was recovered some years afterwards. As a simple core, it is quite as good as any made at the present day. Of course such a slender wire could not be expected to stand the chafing to which it would be subjected against the rocky bottom; but the immediate cause of failure was its being grappled by some French fishermen, who were ignorant of the nature of their find. In December, 1850, J. W. Brett obtained a new concession from the French government; the outcome of this concession was that a cable between England and France was laid during the following year. In the present day our copper is purer, our sheathing wires of a better quality, and we have learned to adapt different types of cables to different depths; but we must admit that the 1851 type has served as a model for subsequent shallow-water cables.

Considerable correspondence has of late appeared in the press regarding the inception and development of submarine telegraphy. Sir Henry Mance has come to the conclusion that to no one individual can fairly be granted the credit of the inception and development of the submarine cable. The work has been the work of many; men of science, men of engineering skill, and men of capital have all contributed to laying the foundation of and building up the network of telegraphs which is slowly but surely being extended to all parts of the world. But one individual who preëminently distinguished himself in this connection was a former president of the Institute—Charles Tilson Bright. The earlier history of submarine telegraphy was marked by many failures, due to weakness, insufficient insulation, loss of cables, etc. Twenty thousand miles of cables were laid during the first sixteen years, but over 9000 knots of this quantity had been abandoned before 1865.

The first Atlantic cable, although a commercial failure, was a great engineering success; it demonstrated the feasibility of safely submerging great lengths of cable in depths of over two miles. The Red-sea line to India, laid in 1859 in answer to the demand for telegraphic communication with India, proved a dismal failure. There were other failures in the same direction, until the Persian Gulf line was laid successfully in 1864. It was in connection with this cable that Sir Henry's associations with submarine telegraphy began. Six years afterward the cables of the Eastern Telegraph Co. were laid between Suez and Bombay, and in 1871 China and Australia were brought into communication with Great Britain.

There are to-day more than 1300 submarine cables in existence, the aggregate length of which cannot be less than 162,000 nautical miles; they vary in length from a quarter of a mile to, say, 2600 nautical miles, and may be roughly classified thus:

Cables under	5	miles in length		761
Exceeding	5	miles and under	50	223
Exceeding	50	"	100	65
Exceeding	100	"	500	155
Exceeding	500	"	1000	64
Exceeding	1000	"	2000	29
Exceeding	2000	"		8
Total				1305

Of these cables, about 18,000 knots belong to the various governments, while the balance of 144,000 knots, mostly composed of long sections, have been laid by private companies. They represent a total expenditure of about $200,000,000, of which probably 75 per cent. has been contributed by private capital.

Up to quite recently nearly every telegraph cable of importance has been manufactured in England, but that country can no longer boast of a monopoly in this business. The development of French submarine-telegraph enterprises is, no doubt, the direct outcome of the liberality with which the French government has in recent years subsidized submarine communications. There are now established well-equipped cable-works at Calais, and a smaller establishment at St. Tropez on the shores of the Mediterranean. In addition to these, there are the government works at La Seyne, near Toulon. The Italians have cable-works at Spezzia. Germany has recently subsidized a direct cable from Emden to Vigo. England's telegraph supremacy may be considered by some as ranking next in importance to the supremacy of her navy. This natural rivalry is not

without its significance, and shows that foreign governments are fully alive to the importance of fostering submarine telegraphy.

The cable engineer does his best to prevent cables from corrosion, but Sir Henry's experience indicates that two inches of good substantial mud is the best preservative of a submarine cable. On many occasions he has recovered cable which had been resting in gray mud for nearly twenty years, and was found to be in as good condition as when it left the factory. Deep-sea cables when well away from shore generally rest on a fairly level and uniform bottom.

For all practical purposes, the telegraphic engineer may regard the oozy bottom of the sea in mid-ocean as in a state of eternal rest; the deeper the water the better the bottom, the safer the cable. It is certain that there will be undulations and depressions even though the bottom may be formed of hard mud; the cable rests on the ridges of these undulations, and is suspended in a series of long or short spans. In the course of years the cable becomes encrusted at intervals with shell-fish and marine life. Marine monsters, such as sawfish, consider it their larder, and, while raking off the marine life, either rupture the cable or penetrate the core with one of their formidable teeth. In any case, sooner or later, the sheathing corrodes, and the cable parts altogether; or, as the outer wires give way one by one, the cable elongates, the core stretches until the copper conductor breaks, the ends being frequently kept insulated by the dielectric until the cable is lifted for repairs.

Some of the faults that occur in submarine cables are of the most extraordinary character. Lightning, earthquakes, landslips, submarine volcanoes have all to be reckoned with; and the leviathan of the deep has more than once been responsible for an interruption. This sounds incredible, but it is nevertheless true. But probably the most dangerous pest of all is the teredo. To ward off the attacks of the latter, the plan is resorted to of covering the core with a thin taping of brass.

In order to effect the repairs which are necessary, a fleet of forty-one telegraph ships is maintained, the gross tonnage of the telegraph marine being nearly 60,000 tons. The vessels are stationed in all parts of the world, and are fully equipped with the usual machinery for grappling, picking up, and re-laying. The cost of repairs is a most serious item in the accounts of a telegraph company, but there is a great element of luck in cable maintenance. Repairing one of the Anglo-American cables is said to have cost on one occasion $475,000.

The work of the telegraph engineer remains incomplete while the Pacific ocean remains without a cable. The speaker deemed a Pacific cable most desirable for England from a strategic standpoint, and likewise wholly feasible from an engineering view. He commended to the telegraph engineers of the near future the subject of the establishment of telephonic communication through long submarine lines, and its corollary fundamental alterations in the form of our future cable.

NOTE.—This article is not meant to be a résumé of the whole of the presidential address, but only to collate the historical features, with some references, to the status of the business of cable insulation.—THE EDITOR.

CANADIAN DUTIES ON RUBBER CLOTHING.

AT a recent sitting of the Canadian tariff commission, a hearing was asked by E. S. Rosenthal, of the Beaver Rubber Clothing Co. (Montreal), in behalf of an increase of the duty on imported ready-made waterproof clothing from 35 to 45 per cent. He claimed that this was warranted by the large difference in wages, rent., etc., in England and Canada. A certain coat, which could be made sold in Manchester for 11s. 2d., would cost in Canada, with duty and freight added, $4.08. It could be sold for $5, with a profit of nearly 25 per cent. to the importer. The cost of making the same coat in Montreal was $4.87, for which reason he claimed that the present rate of duty afforded home manufacturers no protection at all; they might as well be under free trade; they were not trying to sell garments in the $5 class, on account of the ability of importers to undersell them.

There is another concern in Montreal, the Montreal Waterproof Clothing Co., who manufacture garments for both men and women, whereas Mr. Rosenthal's company manufacture men's goods only. A third house in the trade is only a branch of a foreign establishment, and would really favor a removal of the present duties. H. Wener, of the second company named, also appeared before the commission, saying that he had to import many ladies' garments ready-made, they could be produced so much more cheaply abroad.

"Our business is a young industry here," said Mr. Rosenthal. "There were no waterproof tweed coats made in the Dominion of Canada before I came here. I will not ask you to reduce the 12½ per cent. on the raw material, but I would certainly say that if you increase the tariff on the ready-made, not only will you have a revenue but a good many people will wear the coats, and a great many Canadians will have their bread and butter assured. We can sell here from $300,000 to $500,000 worth of coats; almost to the amount that is imported into Canadá." Mr. Wener said that the duty on the double-texture goods was 27½ cents, which was satisfactory; it was only the single textures on which the duty was thought to be too low. The two manufacturers stated that, while no understanding existed between them, they sold at very nearly the same prices, thus not interfering with each other.

TENNIS FOR 1897.

THE United States Rubber Co. is already at work on its tennis, yachting and gymnasium goods for next spring. Mr. Frank D. Balderston, who is very well known to all the rubber trade, from his former connection with the United States Rubber Co., has been appointed special selling-agent for their Tennis, and has recently been West, visiting Chicago, St. Louis, Cincinnati, and other Western cities. He carried with him at that time some of the handsomest tennis samples that have ever been seen. This is the sixth year of tennis goods making by the United States Rubber Co. The output has increased as the demand has constantly grown larger, and each year the company has given more attention to this line of goods, with the result that the output has not only increased in quantity, but has improved in quality. The 1897 tennis are certainly the best goods that the company has yet put out, and it is very likely that their last year's output will be very much augmented this year. Orders should be sent to the Boston office to Mr. Balderston.

RUBBER COMPOUND THAT DOES NOT DISCOLOR.

IT is a well-known fact that the ordinary rubber compound, no matter how pure, or by what means cured, or however carefully tumbled, bleached, or caustic potashed,—will tarnish silver, gold and nickel. When C. J. Bailey brought out his "Eye Glass Guard Covering" this was one of the many obstacles that he was called upon to surmount. It took some time but he has at last succeeded and now has a rubber that will not tarnish the most sensitive of metals.

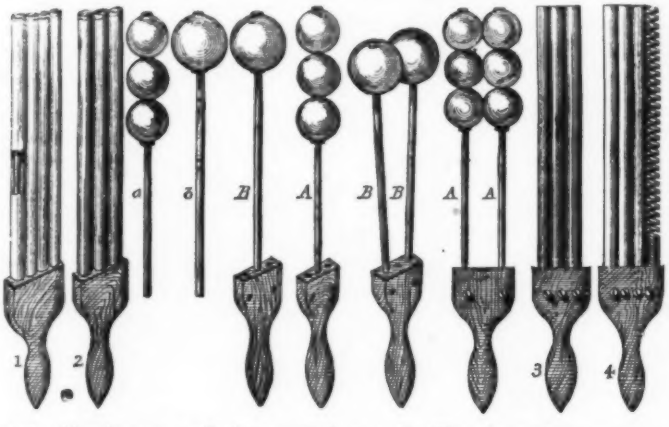
NEW GOODS AND SPECIALTIES.

AN ELECTRIC BRUSH OF HARD RUBBER.

ONE of the newest toilet requisites is the hard rubber electric hair brush. The electric battery is on the inside, the current coming out through the bristles, which by the way are pure white, and imported from France. It is said for this brush that it will repair loss of the hair, as well as cure dandruff and all diseases of the scalp. It is useful also for nervous and sick headache, facial neuralgia and sleeplessness. The downward motion is most desirable, for brushing crosswise or in other directions is apt to injure the hair glands and follicles. The current may be increased by dampening the hair. Manufactured by Dr. John Wilson Gibbs, No. 201 West 72d street, New York.

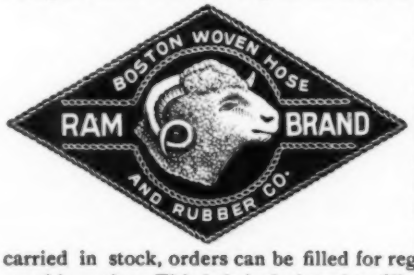
RUEBSAM'S RUBBER MUSCLE-BEATER.

THE art of massage is one dating far back into antiquity and it would not be unfair to assume that it had great influence upon the Greeks in the time when they were at the zenith of their fame as athletes. One of the novelties to be noticed this month is designed to enable those who wish to have an efficient aid to or substitute for the professional masseur with an assortment of implements called "muscle beaters." They are manufactured by John E. Ruebsam, of Washington, D. C., and consist of various forms of India-rubber tubes, or balls placed upon stems of a flexible nature, so designed as to imitate the elastic beating of the masseur's hand. They are well spoken of in the medical profession and doubtless would prove a very valuable adjunct to hygienic apparatus and to gymnasia.



THE RAM BRAND OF BELTING.

THE Boston Woven Hose & Rubber Co. have recently brought out a rubber belting which is specially adapted for elevator service or any severe work. The belt is made of thirty-two ounce duck, with a high grade cover, and first-class friction. It is made in all widths and plies, and, as it is carried in stock, orders can be filled for regular sizes on telegraphic notice. This belt is designed to fill what is found to be a decided want, that is a high grade article at a reasonable price. This style of belt covered by the trade-mark which is shown in the accompanying illustration.

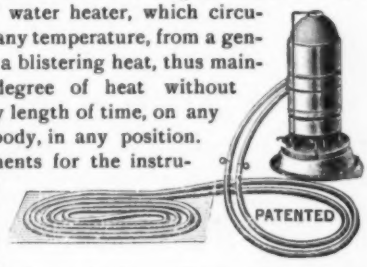


"GREASE-SPOT" TROUSER-GUARD.

THE Burlington Blanket Co. of Burlington, Wis., bring out a new trouser guard fashioned from black duck or wool mackintosh in black, blue, or gray. This little but useful article is intended to prevent unsightly grease spots which, ere now, many a wheelman has deplored on the leg of his trousers, acquired from the leakage of the lubricant upon the crank of his wheel. It is diamond-shaped and holds the trousers snug up to the ankle.

THE GEYSER HOT APPLIANCE.

LIKE many other old-fashioned methods, the clammy poultice has had its day, and its place is taken by the "Geyser" hot appliance made by the Hot Appliances Company, 26 Cortlandt street, New York. This instrument supplies either a constant or a gradually increasing heat automatically to any part of the body. It is a simple piece of mechanism. A coil of rubber tubing is connected with the "Geyser" water heater, which circulates water of any temperature, from a gentle warmth to a blistering heat, thus maintaining any degree of heat without change, for any length of time, on any part of the body, in any position. Seven attachments for the instrument already are made and more will be added as fast as called for by the profession. Those supplied now consist of a metal disk for the eye, temple, and pit of the stomach; a concave disk for carbuncles, malignant boils and ear troubles; a flexible attachment for throat, spine and arms; a concave disk for the bowels; a single flexible attachment for lungs, back, face or head; a double flexible attachment for large surfaces; and a double metal disk for tonsilitis.



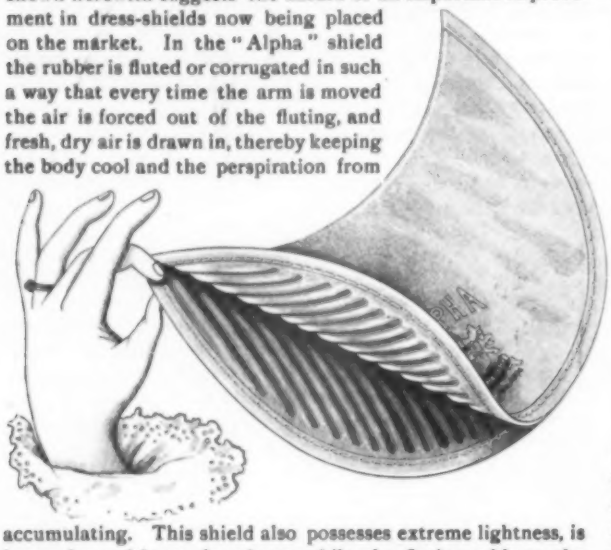
THE DAVIS CYCLE-BRAKE.

A BRAKE that will not injure the rubber tires, and that can be adjusted quickly and easily to any bicycle, long has been desired by many wheelmen. Such a device it has been the intention of a Western manufacturer to produce, the chief distinctive feature being the use of a solid India-rubber friction roller incased in a hood. The roller is so fitted in the hood that, when the brake is applied, the friction required to stop the wheel is produced between the hood and the

roller. This principle of brake construction is applied in two forms: (1) the foot brake, which can also be used as a coaster, and (2) the hand-brake, the adjustment of which is illustrated in the above drawing. The endeavor has been made not only to render these brakes effective but also to add to the appearance of the bicycle. The foot-brake retails at $2 and the hand-brake at $3.50. Made by The Davis Manufacturing Co., Wright's block, Indianapolis, Ind.

THE ALPHA VENTILATING DRESS-SHIELD.

The illustration of the "Alpha" ventilating dress shield shown herewith suggests the nature of an important improvement in dress-shields now being placed on the market. In the "Alpha" shield the rubber is fluted or corrugated in such a way that every time the arm is moved the air is forced out of the fluting, and fresh, dry air is drawn in, thereby keeping the body cool and the perspiration from



accumulating. This shield also possesses extreme lightness, is impervious without clumsiness, while the fluting adds to the elasticity and prevents tearing. This ventilating principle, and an improved process of manufacture render these shields absolutely odorless. They can be washed, and will always retain their fluted shape. Manufactured by Parker, Stearns & Sutton, No. 227 South street, New York.

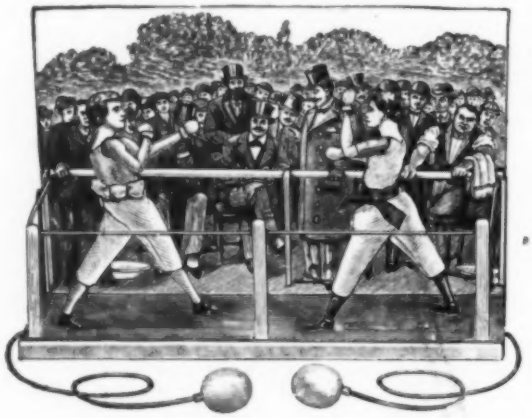
PORTABLE ATOMIZER AND POWDER-BLOWER.

FOR the use of physicians a leading firm in the rubber druggists'-sundries trade has brought out a portable atomizer and powder-blowing apparatus, of which an illustration is shown. This set gives the advantages of a condenser and at the same

time is so compact that it can easily be carried from place to place in its box, which only measures 7×12 inches and 4 inches high. With the foot pump a pressure of thirty pounds can be obtained, leaving both hands free to manipulate the spray and tongue depressor. The apparatus is, of course, planned upon a larger scale than the hand atomizers, being designed for more vigorous work. The spray-tube itself is not new, being the same as that used in the hand atomizer No. 59 made by the same firm, who are the Davidson Rubber Co., Boston.

THE AUTOMATIC PRIZE-FIGHTERS.

IT might be a moot point in these days whether a prize fight is a desirable thing to portray either by picture or model. Certain it is, however, that the "old Adam" in mankind is seldom more keenly aroused than at the prospect of a "scrap." This peculiarity renders the novelty called the "Automatic



Prize Fighters," introduced by the Strobel & Wilken Co., No. 650 Broadway, New York, interesting to lovers of the ludicrous, or to those merchants who desire to attract attention to their show-windows by the antics of the little figures attired as prize-fighters enclosed in a ring with referee and backed up by spectators. The figures are put in operation by that essential element of a prize fight—"wind"—which is supplied by means of air-bulb connected to the figures by long rubber tubes. In the illustration shown on this page the fighters are all ready for the bout. By pressure of the bulb their situation rapidly changes, the figures being made to hit out at each other in an amusing manner. They come packed each in a box, which acts as a platform with the attachments. The retail price is $5.

A NEW RUBBER BICYCLE-GRIP.

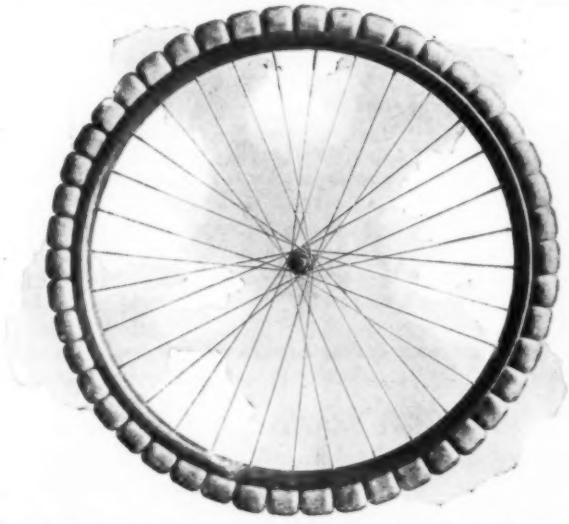
TO the wheelman who remembers the old-time bicycle built of wood and barbarous springs, the machine once familiarly known as a "boneshaker," the modern bicycle, framed of steel and India-rubber, is a wonder of luxurious comfort. The evolution of the modern bicycle from the machine of 1869, for instance, is a history of interesting reminiscence. First came the substitution of wire spokes for wooden ones, then the roller bearing, the ball bearing,

the plain solid rubber tire, and finally the pneumatic tire, all of which mark vivid points in the growth of the bicycle into a comfortable locomotive machine. Among the very latest additions to comfort comes the invention of grips from the handle bars which are designed to relieve the rider from the jarring of his hands and arms when riding over a rough road. Wooden handle-bars having a certain amount of springiness achieve this in part, but the success of the pneumatic tires has tempted inventors to attempt some adaptation of a like princi- ple to grips. The par-

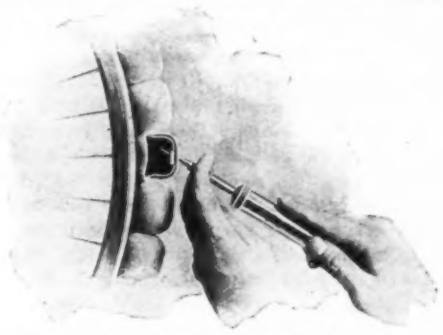
ticular style of grip illustrated here is made of coiled steel-spring wire, so covered with India-rubber as to form an attractive-looking handle. Ventilation between the hand and the grip is attained by grooving the surface of the handle in such a way that the grooves run crosswise and in opposite directions, cutting the surface into lozenge shaped sections. There are three grades of these goods, graded according to the strength of the wire springs, known as "light," "medium," and "heavy." They are fastened to the handle-bars by means of a thimble and a taper plug which is drawn into position by means of a screw. Various sizes of thimbles are manufactured, so that any standard make of handle-bars can be equipped with the new grip. Manufactured by the Morse Machinery Co., No. 1720 Michigan avenue, Chicago.

THE NEW BALL TIRE.

MOST visitors to the recent great cycle-shows doubtless are prepared to give the palm for novelty to a peculiar application of the pneumatic-tire construction which is known as the "ball" tire, from the fact, that instead of a continuous tube confining the air to the wheel-rim, a row of balls is used, each inflated on the same principle as the pneumatic tube, and yet each independent of the other. This invention was noted briefly in THE INDIA RUBBER WORLD'S report of the New York cycle-show, but in this issue advantage is taken of the opportunity to illustrate its features. Each of the rubber balls is fitted with an aluminum pin by which it is attached to the rim of the wheel. The pin passes through a shoe or pocket



formed in a thickened portion of the wall of the ball and is protected from tearing out by a piece of sea island cotton. The advantages claimed for such a sectional tire are several: The localization of puncture and the ease with which a punctured section may be replaced by a spare sound one carried for just such an emergency; the doing away with the messiness of puncture liquids and tools; and the greater resiliency obtained by using pure rubber without the more or less stiffness produced by the shield so necessary in the continuous tire. On the other hand, the tires were extensively criticised on esthetic grounds, though it may be recalled that considerations of this kind did not prevent the ordinary pneumatic tire from becoming popular speedily after the first introduction. Again, if the "ball" tire should prove a fast one, it will be in opposition to



the accepted theories of the principles of tire construction which result in the maximum of speed. The address of the Ball Tire Co. is No. 156 Fifth avenue, New York.

DEATHS IN THE RUBBER TRADE.

WILLIAM PAULY, the oldest resident of College Point, L. I., died at his home there on February 25, in his eighty-sixth year. He came forty-six years ago from Germany, where he had been engaged in the horn-comb manufacture, and in 1854 became connected with the comb department of the hard-rubber works just being started at College Point by the late Conrad Poppenhusen, the chief licensee under Nelson Goodyear's patent. The factory is now known as the Enterprise Rubber Works and operated by the India Rubber Comb Co. Mr. Pauly was for many years in charge of the comb manufacture at these works, and patented a style of comb which became very popular and which yielded him a comfortable sum in royalties. About twenty years ago Mr. Pauly retired from his connection with the factory and devoted the remainder of his life to the affairs of a number of institutions. He was one of the incorporators of the Poppenhusen Institute, a director in the College Point Savings Bank, and a member of Trinity Lodge, F. & A. M. (New York). He had a jewel for fifty years' continuous membership in the latter. Mr. Pauly was also for several terms one of the village trustees, and for a while president of the village. He is survived by two sons, neither of whom is connected with the rubber industry.

* * *

THOMAS SAY SPEAKMAN died February 18 in Philadelphia, in which city he was born July 19, 1817. His father, John Speakman, in 1835, began the manufacture of India-rubber goods at Frankford, Philadelphia. Thomas, who was at that time only 17, was taken from school to assist in the work, which he did with such ability that at the age of 21 he was manager of the works, employing 200 hands. He at an early age improved the method of proofing cloth. By the old process the rubber compound used was laid on the cloth and leveled with trowels, and five men with trowels could only turn out fifty yards of product per day. Speakman's invention enabled two men and a boy to turn out 500 yards per day of improved quality. Mr. Speakman made important inventions in other directions, and, a good many years ago, retired from business of every kind to devote himself to scientific studies.

IT is safe to say, asserts *The Wheel*, that about 50 per cent. of the public hansoms and private carriages in New York city are now fitted with the noiseless and anti-vibratory tires.

THE TIRE SITUATION AT HOME AND ABROAD.

AN unmistakable inference from the recent cycle-shows relates to the greatly-increased prominence of the single-tube, or hosepipe, tire. Its progress has been rapid, as every other feature in the evolution of the bicycle and the pneumatic tire has been. There were no American-made pneumatic tires at the Philadelphia cycle-show of March, 1891. Of the English tires imported from time to time the detachable type came first into popularity, as it had done abroad, where it still leads. The patents under which the prevalent type of single-tube tire is made were granted in 1892-93, but the company having the first chance to take them up declined to do so, in the belief that the detachable tires would prove permanently more successful. The extent of their mistake appears from a comparison of the tires exhibited last month with those which appeared in the New York and Chicago cycle-shows two years ago.

THE INDIA RUBBER WORLD'S report of the New York show of January, 1895, described the exhibits of about twenty tire-manufacturers, or practically all in the field, and of these no fewer than thirteen showed detachable tires. Laced double-tube and inner-tube tires were shown very generally, and only six concerns were reported as exhibiting single-tube tires, including the Palmer tire. Twenty-nine tire exhibits were described last month, in which the detachable tires were limited practically to the Dunlop and Gormully & Jeffery brands; there were no inner tubes worth mentioning besides the Morgan & Wright; while nearly everybody on the list was represented by one or more brands of hosepipe tires. At least fifteen of the tire exhibitors were licensees under the Tillinghast patents. A widespread tendency is illustrated by this paragraph from a circular of the Overman Wheel Co.:

> We have, we think, as good a double-tube tire as exists. It is patented, and we own the patent exclusively, and it would be very pleasant if we could have it universally used, but we are obliged to conform to mechanical laws and therefore, to be honest with riders, must say that light single-tube tires are in every way better adapted for easy-running bicycles. While we make as good a single-tube tire as can be made, it is common property, and may be made by whoever will.

The implication here is that the Overman Wheel Co. do not recognize the validity of the Tillinghast patents. Nor do the New Brunswick Tire Co., who were represented at the New York cycle-show, not only by their own regular brands, but by three or four patented specialties in tires manufactured for their inventors.

As for the detachable tires, some of the firms competing with them were disposed to concede that they might be regaining a little recently lost ground, but in answer to an advertised list of 116 cycle-manufacturers who "will list Dunlop detachable tires in their 1897 catalogues," THE INDIA RUBBER WORLD man was referred to the catalogue of the Pope Manufacturing Co., where he read: "Single-tube tires . . . . were supplied on over 95 per cent. of Columbia and Hartford bicycles during 1896. . . . . We also continue to offer as an option the well-known Dunlop tire." And the catalogue of the Hay & Willits Manufacturing Co. (Indianapolis) says: "Morgan & Wright tires will be fitted on all Outing bicycles unless otherwise stipulated. . . . . The choice of Vim or Dunlop tires is given," etc. Similar expressions appear in many other catalogues. At the same time must be noted the adoption of the Dunlop tire as the standard equipment of the Crescent bicycle, made by the Western Wheel Works (Chicago), one of the largest concerns in the trade, which has built up a large export business. This firm, however, have a license under the Tillinghast patents and supply single-tube tires to customers desiring them. The Yost Manufacturing Co. have also recently adopted the Dunlop tire to their Standard equipment.

As for the type of tire represented by Morgan & Wright, it may be mentioned that in their catalogue for 1895 the following figures were given, showing to what extent their tires were in evidence in the cycle-shows of that year:

	Chicago.	New York.
Number of bicycles shown.....	555	465
Equipped with M. & W. tires.....	252	165
[Percentage with M. & W. tires,.....	45½	35½]

According to *Bearings*, the total number of bicycles in the last Chicago show was 1316, of which 341 were equipped with Morgan & Wright tires, or only about 26 per cent. of the whole. The Hartford Rubber Works Co. state that 247 bicycles exhibited at the New York show were equipped with their single-tube tires.

No material change from the 1896 standard of manufacture either in single-tube or double-tube patterns appeared. But the variety of "puncture-proof" goods was very extensive. There were thickened treads, chemically-toughened treads, metallic treads, and leather treads. The air-tight compartment idea was exploited anew, the ball-tire idea embodying the extreme. The practically puncture-proof quality seems to have been reached in several instances, but the retention of speed and resiliency in these cases is not substantially proved. Indeed, nothing whatever is shown to affect the well-established principle that all extra thickening, stiffening, or armoring deprives the tire of resiliency, speed, and easy-running qualities generally. The so-called puncture-proof tires shown are mostly good things in their way, deserving of criticism only for the claim that such tires are as springy and speedy as any other. On this point a prominent manufacturer who has lately brought out a thickened-tread tire for a special demand, stated to THE INDIA RUBBER WORLD that he regarded this tire as less resilient than his standard road tire by 25 or 30 per cent., but that for the class of roads for which the special tire was designed the more delicate and more speedy tires would not be practicable. Of the construction of tires in other respects there is nothing of special importance to note beyond the general tendency to adopt roughened or corrugated treads. As for size, larger diameters rule than at the cycle-shows two years ago. Tires are generally a trifle heavier and more substantial than heretofore.

SOME MORE EXHIBITS AT NEW YORK.

THE Diamond Rubber Co. (Akron, Ohio), who were not mentioned in the last INDIA RUBBER WORLD as exhibitors at the New York show, were represented by Roger B. McMullen & Co., with their Hazeltine tire. This is composed of (1) an "air-bag," which is a very light single-tube tire; (2) "bands," composed of sections of fine cotton fabric, their ends being connected by strips of rubber, the whole forming an endless band; and (3) an endless outer "cover" to protect bands and air-bag and give wearing surface. The peculiar construction of the tire is intended to protect it from puncture. Rubber Tire Association guarantee.

The Monarch Rubber Co. (Campello, Mass.) have added to their production of waterproof and mackintosh cloth a new form of tire which they label the Monarch of All, and offer as

being puncture proof. The company have opened New York offices at Nos. 21-23 Centre street.

Several exhibits included single-tube tires involving no novel features, but merely made to order by the rubber companies for the trade of certain dealers in cycle specialties. Such was the Eureka tire, sold by G. R. Johnston & Co. (New York), and made for him at Trenton, N. J. A Cincinnati firm exhibited a tire made specially for them at Akron, and so on. By the way, many of the large bicycle firms who have licenses to manufacture tires, and advertise their own special tires, have them manufactured by the rubber companies. This is true, by the way, of E. C. Stearns & Co. (Syracuse, N. Y), who have been widely mentioned in the cycle journals as making their own tires.

The Dean Tire Co. (New York) exhibited a tire, mentioned in our last issue, the distinctive feature of which is an armor of aluminum between the fabrics. The manufacturers have sold their rights for England at what is reported to be a good figure.

The Curtis Manufacturing Co. (New York) exhibited a pneumatic leather inner-tube tire.

Pneumatic saddles were shown by a number of makers. Among those involving the use of India-rubber were the Cutting, made by Cutting & Kaestner (Chicago); the Craig, made by the Craig Cycle Saddle Co. (Lawrence, Mass.); and the Perry, made by the Harris Toy Co. (Toledo, Ohio). Rubber bicycle grips were also exhibited by the Merry Pneumatic Grip Co. (Brooklyn, N. Y.) and the Morse Machinery Co. (Chicago) A feature of great importance in the development of the pneumatic tire has been the air-valve, and the convenience of all concerned has been enhanced by the introduction of uniformity in size. The Schrader universal tire, exhibited by A. Schrader's Son (New York), has come into great prominence of late. In order to avoid complications the manufacturers sell to tire-makers only, and thirty rubber concerns are named in their circulars as using the Schräder tire alone. In tire-vulcanizers, for use in repair shops, there was great variety.

NOTES FROM THE CHICAGO SHOW.

THERE were a few tire exhibits at the second National Cycle Exhibition at Chicago—held in the great Coliseum building, January 23-30—which were not forwarded to New York, just as there were displays at the eastern show not previously seen at Chicago. Some notes may therefore be presented from the Chicago correspondence of THE INDIA RUBBER WORLD, crowded out of the last issue of the paper.

The Kokomo Rubber Co. (Kokomo, Ind.) were among the exhibitors at Chicago whose display was not forwarded east. They produce the Defender (single-tube) and Sunlight (double-tube) tires, each in road, tandem, and sulky grades. The Defender road tire, 28″ × 1⅝″, weighs 3½ pounds to the pair and is listed at $12. Rubber Tire Association Guarantee.

The Furlong Cycle Tire Shield Co. (St. Louis) exhibited, in connection with the Kokomo company, a puncture-proof pneumattic tire. It is a single-tubc, protected against punctures by the following device: The tire has a honey-comb flat tread ¾ inch in width which carries the tire ⅞ inch from the ground. By reason of this honey-comb surface or tread, tires cannot slip on wet surfaces or receive punctures. They do not flatten under the weight of the rider and can be propelled without much effort. The company also exhibited a special tire for trotting and pacing sulkies, 28″×1⅝″ and weighing 5 pounds.

The Palmer Pneumatic Tire Co. (Chicago) made a notable exhibit at Chicago. Their light racer tires are identical in construction with all Palmer tires, though constructed with a view to obtaining the utmost speed without regard to durability. Their extreme lightness is remarkable. The difference is entirely in the rubber, the fabric being uniform. The road racer is intended for those known as boulevard riders, who take their outings in the parks. These tires are also claimed to be record-breaking coasters. In addition to these and the regular line of road tires, the company exhibited their new tandem tires, respectively known as the Mexican and Quad tires. The use of ordinary tires on tandems is inconvenient and uncomfortable, and these special tires are so constructed that they will withstand the increased driving strain necessary to propel a wheel carrying two persons. They respond easily to the pressure upon the pedals, and though exceeding the weight of ordinary tires by a pound to a pair, are fully as fast. The Mexican tire is so constructed that it yields to thorns but heals immediately without loss of air. This self-healing feature is obtained in the vulcanization. The tread of the tire is molded on one curve, while on inflation the curve is reversed, creating a condition known as compression. Thus a hole in the tread is closed in the same manner as one would pinch together the lips of a cut. As for the Quad tires, they are made to carry any possible bicycle load, and their strength is such that six men are perfectly safe on them. The number of plies is doubled and they are covered with the usual liberal guarantee. The Stearns sextuplet, which raced the Empire State express, was fitted with the quad tires. For the old-fashioned plank road, the company has a "plank road tire,"—tough enough to withstand the sharp slivers from the planks. Rubber Tire Association guarantee. [This exhibit was repeated at the New York show, but did not happen to be in readiness at the time the latter was written up for THE INDIA RUBBER WORLD.—THE EDITOR.]

The Mechanical Rubber Co. (Chicago) exhibited a new single-tube tire, known as the Tiger, in a variety of styles. Rubber Tire Association guarantee.

The Chicago Puncture-Proof Tire Co. are among those who have novelties on the market. The pneumatic tire manufactured by this company is claimed to be puncture-proof. The construction of the tire is as follows: In addition to the rubber and Sea Island cotton fabric, a stiff-rolled steel-armor is used. The steel is 2¼ inches wide and .005 of an inch thick. It is tempered differently from a clock spring and though very elastic, cannot be broken. Under no circumstances is a puncture possible, it is asserted.

The Bunker Saddle Co. (Chicago) exhibited several new things. Their No. 6 saddle is provided with a yielding rubber cushion, one inch thick over its entire surface. The rubber cushion is neatly covered with calf skin. No. 5 pneumatic saddle has an improved inflating case made of very thick heavy rubber so as to remove all danger of puncture or deflation.

The Harris Toy Co. (Toledo, Ohio) have for 1897 a perfect saddle as they claim, known as the "Perry." The rubber cushion is constructed upon new and original lines, using but ⅞ inch when fully inflated. It has no tendency to roll and wobble. It rests upon a solid steel base and can be deflated with perfect security.

The A. C. Barber Manufacturing Co. (Chicago) showed an automatic and pneumatic saddle. The air cushion is of extra quality fine rubber, with valve to fit the standard tire pumps.

The F. T. Waters Co. have a saddle called the Plew. It is the only pneumatic saddle with a "soft nose." The bag is made of pure rubber tubing vulcanized at each end.

The Spencer Brake Co. (New York) have in connection with their Spencer Plunger Brake a special feature — the brake spoon. The contact with the tire is made with rubber blocks, one on each side of the under surface of the spoon. The blocks are renewable, and there are no bolts or screws in them.

The Cycle Supply Co. (Hartford, Conn.) had among their numerous sundries the Hartford rubber cement, said to be the most adhesive and best made and good for both single and double tube tires, and a detachable rubber mud guard, which is handy in muddy weather and can be attached and removed instantly. It fits any wheel.

[Most of these specialties were shown also at New York, but do not require separate description in connection with the eastern show.—THE EDITOR.]

DUNLOP AND OTHER TIRES IN ENGLAND.

ONE whose interest in English tires has been monopolized by the performances of the big Dunlop company might be surprised at the number of other bicycle tire concerns now advertising their products at the provincial shows. An exchange describes fifteen different tire exhibits—not including the Americans—at the recent Midland cycle-show at Birmingham, some of which appeared much more prominently than the Dunlop display. The latter has the reputation, however, and in its out-of-the-way location was looked for by most visitors. In an account of the Dublin cycle and motor-car show a wheeling journal describes twelve British tire exhibits, "among others," including several not shown at Birmingham. But the "Dunlop" is nowhere lost sight of. Thus the London *Industries and Iron*, in a special cycle-show supplement, after devoting some pages to the other tire exhibits, wound up by saying: "Practically monopolizing, as it does, the trade in pneumatic tires, very little is now left to be said of the Dunlop pneumatic tire. It is made in various forms for cycles, vehicles, and for use in tropics. The cycle tire for next year is undergoing very little change, the only alteration being a slightly thicker rubber, on the tread portion."

Several of the more prominently-advertised tires are manufactured under Dunlop licenses. Scott's Standard Tire Co., Limited (London), are thus licensed. The Turner Pneumatic Tire Co., Limited, are licensed to make tires under the Dunlop and Welch patents, so long as they do not deceive the public as "Dunlops." The Preston Davies Tire and Valve Co., Limited (London), make a tire "on the Dunlop principle," according to the reports of the shows. "There is little difference between the Warwick [made by the Cycle Component Co., but soon to be turned out by a separate company] and the Dunlop." The English Cycle and Tire Co. (London) show the "English" tire, which is "somewhat similar to the Dunlop." In the published reports of other tires, a common expression is that they are, "of course, detachable."

The India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited (Silvertown), "are introducing a tire which to all intents and purposes is a Dunlop. So far as its attachment is concerned, the cover has wires within each edge made endless by a joint, and it is used upon what is practically a Dunlop rim; the cover is rendered non-slipping by the use of a central fin and corrugated sides. The tire, which will fit any Dunlop-section rim has the Palmer fabric." As for the company known as The Palmer Tire, Limited (Birmingham), they are making a detachable tire for racing purposes for those who wish it, though still "pinning their faith to the single-tube variety for extreme speediness."

Still there are not a few manufacturers who are bringing out alleged new features, in the hope that they will win popular favor, or old features which they hope may be judicially declared sufficiently unlike the Dunlop tires to exempt them from penalties for infringement. Of the former class are several "non-puncturable" tires, the novel feature of which is a strip of leather, or a thickened tread, or something of the kind. There are also "self-healing" tires. Then there is the Fleuss tubeless tire, but the fact is not overlooked, even in this case, that the British cyclist wants a tire "easy of detachment."

From recent bicycling publications which do not at all complete the list, the following names of tires has been compiled, representing twenty-two different manufacturers:

Bagot,	Crozier,	Fleuss,	Ripley,	Self-sealing,	Victor,
Beeston,	Dunlop,	Grappler,	Scottish,	Standard,	Warwick,
Cox,	English,	Palmer,	Scott's,	Tarver,	Woodley,
Crowther,	Fleetwood,	P'rst'n Davies,	Seddon,	Turner,	Zenith.

The Morgan & Wright "quick-repair" tires have been on exhibition at all the British cycle-shows, and the Gormully & Jeffery tires (made for English trade at their Coventry factory) have also been shown. But a point of special interest to the American trade is emphasized by *Industries and Iron*, which, in describing the American cycle exhibits on the other side—such as the "Crescent," "Dayton," "Syracuse," "Ben Hur," "Envoy," and "Eclipse" wheels—points out that "like many others of American make on the market here, they are being fitted in accordance with English ideas,—that is to say, double-tube tires, metal rims, mud-guards, and brakes."

TIRES AT SOME OTHER SHOWS.

UNDER the auspices of the Philadelphia Cycle Board of Trade, a cycle show was held in that city on February 20–27. A number of leading cycle manufacturers were represented creditably, in addition to which exhibits of tires were made by the Newton Rubber Works, L. C. Chase & Co., the New York Tire Co., the Palmer Pneumatic Tire Co., Limited, Morgan & Wright, the New York Belting and Packing Co., Limited, the Hartford Rubber Works Co., and the American Dunlop Tire Co.

On the same dates the New England Cycle Show was held in the Mechanics' building, in Boston, with exhibits representing most of the leading tire manufacturers, including one located as far West as the Peoria Rubber and Manufacturing Co. Likewise Denver had a cycle show during February at which the Boston Woven Hose and Rubber Co., together with other tire manufacturers, were represented. The fourth "local" cycle show of the month was that in Cincinnati, at which the tire trade was fully in evidence.

A MODERN RUBBER-STAMP FACTORY.

AS a matter of fact few people recognize the makers of rubber stamps as rubber-manufacturers. At the same time some of the larger of them have a fair equipment of rubber machinery and are really as much makers of rubber goods as those who turn out ordinary mold-work. For example, at the factory of the R. H. Smith Co., of Springfield, Mass., they are equipped with screw presses, a large Boomer press, vulcanizers, and with a variety of molds that show an investment of thousands of dollars. These molds by the way are not made of metal but are of a plastic compound, the ingredients of which are kept secret. This compound when once it is set, which takes but a few seconds, is capable of long use, some molds that were shown the writer having been used fifteen times and yet were in perfect condition. It may interest the rubber-manufacturers to know that the compound from which these are made is for sale by the R. H. Smith Co. for eight cents a pound and that it can be used in a variety of mold work. The R. H. Smith Co. are the manufacturers of a pneumatic cushion stamp, the body of which is really made of sponge rubber. Their sponge by the way, no matter what its exposure may be, seems never to harden.

BRIEF ABSTRACTS OF RECENT RUBBER PATENTS.

THE interest of inventors in and about pneumatic tires seems to keep up well. This month, as last, we have to chronicle some fifteen patents dealing with this subject, the diversity of opinion as to the best means of shielding a tire against puncture seeming to be as great as that obtaining among the old burghers' of Ghent as to the best material to use as a defense against the shafts of the enemy. "Depend upon it" said one of these worthies, "there's nothing like leather," and so one of our inventors uses rawhide mingled with wire, another a flexible metallic tube, another "flat spring metal plates," and so on through cork, canvas and celluloid. There is little of novelty in the tire mending devices, the inventions relating mainly to details and so far as leak repairing compositions go there seems nothing new that will make it less necessary for tire manufacturers to guard their guarantees against this element of danger. One inventor fills the inner tube of his tire with jelly, but does not say whether currant or quince, nor claims that the weary wheelman may obtain refreshment for the inner man upon occasion from the swelling nectar of his tire.

TIRES.

No. 574,438.—Pneumatic Tire. Edward Lyon, New Rochelle, N. Y.

This tire consists of a rubber air tube inclosed within a protective tube formed from strips of rawhide interwoven with strands of wire and disposed obliquely to the axis of the tire. The strips of rawhide are more or less embedded in one another where they cross and are compressed to close the interstices between the strips.

No. 574,440.—Pneumatic Tire. Lewis J. Miller, Bergen, N. Y., assignor to Orville J. Miller and George D. Wiedrich, same place.

The combination with the tread portion of the air tube or wrapper of a pneumatic tire, of a flexible metallic strip of annular shape seated within the elastic material of the tube or wrapper, the said strip comprising double layers of conjointly-connected plates or scales disposed both longitudinally and transversely in parallel rows, the outer plates slightly overlapping in one direction, and the inner plates substantially covered by the outer plates, the outer plates being respectively provided with bent prongs or hooks forwardly at their opposite edges and perforations at their opposite extremities, the forward prongs passing into and hookingly retained in the perforations of the contiguous plate, and so on through the rows of the series, the inner or backing plates having central openings elongated lengthwise and side prongs or hooks of the external plates passing through said openings and flexibly retaining the outer and inner plates in juxtaposition, said protective strip being adapted to longitudinal play and to curvature both longitudinally and crosswise.

No. 574,446.—Wheel Tire. James H. Northrop, Hopedale, Mass.

The inventor forms an air tube folded over upon itself and vulcanized while so folded so that it remains in this condition when not inflated. By inflation it becomes a pneumatic tire intended to be used as such in connection with an annular tread surface to which it may be adapted by means of a rib or band formed in the substance of the inflatable portion. Insertion or removal of the tube between the rim and the free edge of the tread surface is claimed to be rendered more easy by the adoption of this device.

No. 574,453.—Patching Device for Pneumatic Tires. Joseph Savoie, Central Falls, R. I.

A hollow needle with an enlarged head adapted to receive a patch upon its end and draw it into position against the inner side of the tire after cement has been forced against it through slits provided for that purpose in the sides of the needle.

No. 574,608.—Device for Mending Tires. Frank B. Jencks, Syracuse, N. Y.

A tire mending device consisting of a slotted needle with a hollow shank and a push rod or plunger movable in the shank and slot of the needle for forcing strips of the mending material into the tire. The needle is provided with suitable openings to contain the mending material and the whole is provided with handles for conveniently operating the same.

No. 574,772.—Vehicle Tire Protector. Marion A. Andrews, Syracuse, N. Y.

A protector for vehicle tires, comprising a suitable backing, a body thereon, straight transverse spring plates on said body and parallel ribs upon the exterior of said body all vulcanized together whereby the compression of said ribs produces a spring action of said plates. Claim number two provides for spurs projecting from the spring plates through the body into the spaces between the ribs. Claim number 3 provides that the spring plates may be concaved transversely and for the use of the protector in combination with a tire provided with a peripheral rib fitting into said concavity when the protector is applied to said tire. A protector strip for tubular tires comprising an endless interiorly concaved backing, a body thereon provided with exterior parallel ribs of flexible and yielding material crearing an annular recess between them and flat spring-metal plates embedded in said body having their lateral edges abutting against each other and lying in a plane tangential to said concavity all vulcanized together.

No. 574,940.—Vehicle-Wheel. Jas. M. Rice, New Rochelle, N. Y.

The tubular vehicle-wheel tire comprising two independently movable and relatively concave rings, the one surrounding the other, and an interposed continuous wire spring formed of a series of flat overlapping coils for retaining the same in their normal concentric relation, said spring being inserted loosely between said rings with its consecutive coils fastened together on one side at the point of overlapping. A tubular vehicle-wheel tire formed of two independent concentric rings, the one surrounding the other, with opposed annular internal cavities and intermediate external recesses, interposed continuous flattened coil wire springs retained within said cavities and a flexible rubber shoe enveloping the outer ring and the adjacent portion of the inner ring to close and seal the intervening space and having annular tongues to enter and engage the external recesses of the outer ring. Claim number four covers the combination in a vehicle-wheel built up of spokes and headed nipples secured to a tubular rim by annular and lateral slots, with the system of concentric rings and flattened springs above mentioned, said rim being secured to the inner ring,

No. 575,445.—Rubber Tire. Elias L. Toy and Albert T. Holt, Akron, Ohio.

In a rubber tire or cushion for vehicle-wheels having longitudinal apertures for the retaining wires, the combination of connecting and supporting links provided with openings or eyes at each end which serve as a core support and also to maintain the retaining wires and prevent their displacement when in use. It is claimed that the transverse connecting links combined with molding wires prevent displacement of the core in formation of the tire.

No. 575,218.—Bicycle Tire. Joseph F. Dolles, Chester, Ill.

A protective shield and its combination with a bicycle tire. The shield is formed of an elastic material such as canvas, upon which is secured strips of spring material whose edges are turned over upon themselves so as to form a rib or thickened

edge. These bands of spring material are placed upon both sides of the elastic foundation in such a manner that the edges of those upon one side are covered by the bodies of those upon the other side. The bands are long enough to pass round the entire circumference of the tire. The shield is located within the tire and follows the tread thereof. It is secured to the tire by the edges of the elastic strip. The spring bands may be either flat or concave on one side and convex upon the other.

No. 575,551.—Pneumatic Tire. George C. Moore, Worcester, Mass., assignor to the American Tire Co., Limited, Toronto, Canada.

This tire is built up of three tubes. The inner one sealed at the ends and filled with air. This is enclosed in a textile self-shaped tube made up of unequal segments the larger segment being longer at midwith than in the marginal portions. Outside these two is placed a rubber shoe or cover consisting of a self-shaped tube split longitudinally and composed of two unequal segments the larger having its greatest length at midwidth and its minimum length in its marginal portions and having free edges which are inserted between the rim and the textile tube to secure the tire to the rim. Suitable provision is allowed for the placing of the valve. The shoe part may also be lined with a textile lining.

No. 575,586.—Bicycle Tire. Henry Bingham, Melbourne, Victoria.

The inventor builds up a tire as follows: Next the rim he places a layer of cork and to this he cements a layer of celluloid, then comes a canvas casing consisting of an endless circular tube enclosing an inflated rubber tube, next comes a plurality of layers of cork and celluloid, the whole being enclosed by a rubber cover having internally projecting lips suited to retain the various layers of cork and celluloid in place. Points covered by the patent are the combination with the rim of a foundation piece formed of flattened layers of difierent kinds of elastic material. An elastic cover provided with lips engaging the layers of elastic material, said lips being made integral with the said cover, a punctured shield composed of flattened layers of different kinds of elastic material held inside of said cover between the tread portion thereof and said lips, a circular canvas casing held between the elastic material carried by the rim and the said puncture shield and an endless inflated tube carried within said casing.

No. 575,643.—Composition for repairing leaks in pneumatic tires. Charles S. Howe and John W. Langley, Cleveland, Ohio.

A liquid for repairing leaks in pneumatic vehicle-tires consisting of a heavy non-oleous liquid containing a mineral gelatinous substance. The inventors specify glycerine wholly or in part, gelatinous particles of silica in suspension therein, or a mixture of glycerine and water glass approximately neutralized by an added acid.

No. 575,783.—Wheel Tire. Edward E. Quimby, Orange, N. J., assignor to the North British Rubber Co. Limited, Edinburgh, Scotland.

The combination of an annular wheel-rim presenting upon its convex side a circumferential recess, the side walls of which are provided with concentric grooves V-shaped in their cross sections, a tire of flexible material approximately V-shaped in cross section and provided near its edges on each side with two parallel ribs approximately triangular in cross-section and adapted to be seated in the said V-shaped concentric grooves in the side walls of the circumferential recess in the wheel-rim and an inflatable annular tube contained within the said rubber tire and serving when inflated to compress the ribs of said tire into their respective seats in the said concentric grooves.

No. 575,797.—Elastic Tire. Charles K. Welch, Coventry, England, assignor to the Pneumatic Tire Co., Limited, Dublin, Ireland.

In an elastic tire, the combination with an outer cover of an inner tube containing jelly or the like gelatinous substance, and an elastic chamber or chambers containing air under pressure and operative to put the jelly under compression.

BOOTS AND SHOES.

No. 574,372.—Overshoe. Charles J. Bailey, Newton, Mass.

This overshoe or foothold as it is called in the body of the claims is composed of a short sole to extend under the sole of the shoe to be protected as far back as the shank thereof. It has a toe piece and sides which form its upper portion and is fastened by a strap formed by prolonging the edge of one of the sides, said strap being adapted to extend diagonally across the shoe in front of the ankle of the wearer so as to connect with the opposite side of the foothold by means of a suitable fastening device.

No. 574,373.—Foothold. Charles J. Bailey, Newton, Mass.

This article is formed of a short sole and sides, said sides being carried about the rear end of the sole and shaped to present a neck which terminates the upper at rear end of said sole, said neck having its free rear edge inclined forwardly and upwardly and provided with an attached strap adapted to cross in front of the ankle of the wearer, said strap having a suitable fastening device whereby it may be connected to the opposite side of the neck. The points emphasized are the contraction of the rear end of the sole into a neck fitting snugly to the shank of the shoe of the wearer and a normal longitudinal curvature of the foothold in excess of the normal curvature of the shoe it is worn upon.

MECHANICAL GOODS.

No. 575,142.—Concentrator Belt. William F. Bowers, San Francisco, Cal.

A concentrator belt having rubber side flanges reinforced in the upper portions by a separate substantially non-elastic flexible strip or cord, extending throughout the length of the flanges.

PROCESS PATENT.

No. 575,730.—Process of extracting and purifying Gutta-percha. Hippolyte E. Sérullas and Felix E. Hourant, Suresnes, France.

The inventors pulverize the leaves or other parts of Gutta-percha plants, exhaust the powder by treatment with a hydrocarbon solvent and subsequently treat the solution so obtained with acetone which will precipitate the Gutta-hydro carbon, the fluavil and the alban.

MISCELLANEOUS.

No. 574,449.—Polishing and Abrasive Material. Arthur F. Prittschau, Pittsburg, Pa., assignor of one-half to Albert Pettit, same place.

An abrasive polishing and scouring material consisting of an ordinary sponge combined and filled with a mixture of caoutchouc, sulphur and an abrasive powder, vulcanized.

No. 575,673.—Recoil-pad. Jacob R. Winters, Clinton, Mo.

A shoulder recoil-pad having a base provided with means for securing the same to the arm of a person and a pneumatic cushion secured to the base, the lower end of the base being formed with an upward curve.

TRADE-MARKS.

No. 29,343.—Boots and Shoes. McKay Neverslip Sole Company, Detroit, Mich. Filed Oct. 26, 1896.

Essential Feature.—The word "Neverslip," associated with a representation of a part of a sole of a shoe. Used since May 1, 1896.

No. 29,396.—Cement Composition for Mending Pneumatic Tires. Puncturoid Manufacturing Co., Chelsea, Mass. Filed Oct. 7, 1896.

Essential Feature.—The word "Puncturoid." Used since September 23, 1896.

No. 29,502.—Rubber Belting, Hose, Packing and Utensils made of Rubber. The Peerless Rubber Manufacturing Company, New York, N. Y.

Essential feature.—The word "Rainbow." Used since Nov. 10, 1890.

DESIGN PATENTS.

No. 26,532.—Foothold. Chas. J. Bailey, Newton, Mass.

This design patent is similar to the foothold described in patent No. 574,372 mentioned above.

No. 26,577.—Nursing-nipple. Henry Meier, New York, N. Y. Filed Sept. 29, 1896. Serial No. 607,375.

INVESTIGATION OF THE "RUBBER TRUST."

MR. CHARLES R. FLINT was for a week lately the best advertised man that the rubber trade has known for an age, in his position as a star witness before Senator Lexow's anti-trust investigating committee, in New York. After attending several sessions I was forced to conclude that, if the honorable legislators were sincere in their quest for facts regarding the United States Rubber Co., for instance, they were far from qualified for their task. One of the newspapers, by the way, has since quoted the chairman as acknowleding that his committee were hampered through not having given more preliminary study to the "trusts," to aid them in the preparation of pertinent questions. THE INDIA RUBBER WORLD has sometimes pointed out the purely imaginative nature of the average newspaper accounts of industrial affairs, and Chairman Lexow's program seemed to have been inspired by the most inane articles printed in late years regarding the rubber trade. Naturally not all of his questions were capable of being grasped by a witness accustomed in business to dealing with cold facts, but Mr. Flint went on for days trying to explain everything relative to the motives and methods of the rubber company about which a question was asked. Time and again the presiding senator arose in his seat and emphatically expressed his anger at not being answered with the "yes" or "no" which his program apparently called for, but instead of which he was told why neither answer, unqualified, would be accurate. But the witness remained unruffled, insisting upon his explanations so successfully that some one compared the chairman's efforts to stem the flow of talk to Mrs. Partington's trying to sweep back the ocean with a broom.

* * *

I DON'T mean that in this bout either side lacked persistence. But Mr. Flint, appearing as a private citizen, was confronted by six gentlemen in official position, armed with special powers, and yet the witness won the honors. He informed the committee that he had been legally advised that, the United States Rubber Co. being a New Jersey corporation, he might refuse to testify at all, instead of which he had left his business and subjected himself to the committee, and no one who heard him can say that Mr. Flint appeared unwilling to talk. But the testimony which Mr. Lexow desired most to have placed on the record was largely offered by the senator himself and not corroborated by any other witness. On the contrary, it was for the most part stoutly opposed by Mr. Flint. This didn't keep it off the record, however, nor out of the press, and I have read in several out-of-town newspapers that certain things were "demonstrated" or "clearly shown" before the committee, when, in fact, they were only asserted by the chairman. A thing which I should have resented was the presiding senator's manner toward witnesses—men of high standing in the business world treated as were the vicious and criminal types who were put "on the rack" before a former Lexow committee by the gentleman who has since become Recorder Goff. But farther than this I am not taking sides in the matter of the rubber investigation.

* * *

SENATOR LEXOW apparently regards any combination of two or more business corporations as something inherently sinful, which can be accomplished only by criminal means, and which can result only in injury to the public. In his opinion, only tangible property has value, and if patents, franchises, and good will owned by a corporation are included in the capital account, they are "water," and watering stock is as wicked as the combining of companies. Whoever accepts compensation for bringing about a combination of capital acts dishonestly. If a company is capitalized at any given figure it can not be worth more than that figure, though a company is not necessarily worth as much as its capitalization. It is a praiseworthy thing to reduce prices of products, but oppressive and wrong to raise them at any time, for any cause. This "anti-trust" creed has been inferred from Senator Lexow's questions, most of which were repeated time and again, as if in expectancy that the witness would some day forget his former testimony and make admissions at variance with it. But this never happened to Treasurer Flint.

* * *

As for the rubber business, the idea uppermost in the minds of the committee was that the "trust" is a mysterious something, having had a dark and wicked origin, and designed to restrict the production of goods, to put up prices beyond an honest figure, and thereby to rob the public. Evidently the legislators failed to satisfy themselves as to how this organization came into being, or gained control of the factories. But they knew, without making any inquiries, how many factories had been closed, in the restriction of output, and the percentages of increase in the prices of rubber boots and shoes, and nothing that a sworn witness might say on these points had any weight with the committee. Nor was the repeated assurance of Mr. Flint, that he did not personally constitute the "rubber trust" and dictate the closing of factories and mark up the prices of shoes, accepted as true. He was constantly assuring the investigators that information which they were asking for was not within in his knowledge, but was to be had from other officials of the company in closer contact with the details of management, but no one of these was called to the witness stand.

* * *

MR. FLINT is, as everybody knows, a director in the big rubber company, and its treasurer. He was an important factor in its inception, though neither an incorporator nor a member of the original board of directors. He testified that the first issue of stock, amounting in round numbers to $2,000,000, was for the acquisition of the New Jersey Rubber Shoe Co. (New Brunswick, N. J.), after which three directors were appointed as a committee on appraisal to examine certain properties offered to the company by the banking house of H. B. Hollins & Co. (New York). The committee had the assistance of experts in the matters of real estate, machinery, rubber manufacturing, etc., and made a report recommending the purchase of these properties at a certain lump sum, and stock was issued for the full amount to Hollins & Co., who delivered it to the individual stockholders in the several companies in exchange for their shares in the said companies. The shares thus received are locked in the vaults of the United States Rubber Co. at New Brunswick. Mr. Flint did not know what amount of stock in the new company was issued in acquiring any one of the factories. The data upon which the appraisal committee based its formal report was never in the possession of the United States Rubber Co., but, after making this assertion repeatedly, Mr. Flint was served with a subpœna for the production of the papers. They were, of course, not forthcoming, though the report on appraisal was presented. In answer to questions Mr. Flint stated that the companies acquired

during 1892, with the date of their organization, and the amount of their capital, were:

	Organized.	Capital.
The L. Candee & Co.	1842	$ 600,000
Goodyear Metallic Rubber Shoe Co.	1843	1,000,000
Meyer Rubber Co.	1844	200,000
New Jersey Rubber Shoe Co.	1877	200,000
New Brunswick Rubber Co.	1849	300,000
American Rubber Co	1877	1,000,000
Boston Rubber Co.	1888	300 000
Lycoming Rubber Co.	1886	400,000
Rubber Manufacturing and Selling Co.	1891	300,000

The Colchester Rubber Co. were closely related to the last-mentioned concern, and during the next year both were included in the United States Rubber Co. During 1893 the properties acquired were the Woonsocket Rubber Co., the Marvel Rubber Co., the Lawrence Felting Co., and the Hammond Buckle Co. In 1894 a controlling interest was acquired in the Goodyear India Rubber Glove Manufacturing Co. The stock is held of the Brookhaven Rubber Co. (Setauket, L. I.), but the plant was sold some two years ago to Joseph W. Elberson, or a company controlled by him. The issues of stock in 1893 reached $26,423,600, and the total issue to date is $39,566,500.

* * *

IN regard to the capitalization of the companies, the aggregate of which was much less than the stock issues mentioned, Mr. Flint said that most of the concerns had been in business for a long time—thirty to fifty years. Each factory was in the hands of a few individuals, who had held it from the beginning. They had operated it on the same principle that the Chemical Bank of New York operates on. Their accumulations had gone into the business; the business had grown from a little to a great business; so that the capital stock had no bearing at all on the intrinsic value of the property. While the capital of the Chemical Bank is only $300,000, its shares sell in the market at a rate that would indicate a value of $12,000,000. The only other witness examined in regard to rubber was James B. Ford, vice president of the big company, who testified that when he was treasurer of the Meyer Rubber Co. they paid annual dividends of 25, 40, 50, and 60 per cent. The company got six shares of United States stock for each of their own. The stock was practically all owned by his father, the late John R. Ford. For three years before the consolidation the Meyer company did not pay these dividends because the directors decided to put all the profits into improvements.

* * *

ACCORDING to Mr. Flint, there was no over-capitalization. The established working organization and channels of trade of a growing business; the trade-marks, built up after years of painstaking effort; patent rights, etc., were as valuable as bricks and mortar and machinery, and as well entitled to be considered as capital. He acknowledged as correct a paper produced by Senator Lexow, being a copy of an agreement whereby a commission for promoting the organization of the United States Rubber Co. was to be divided among Hollins & Co., Charles R. Flint, Richard C. Sibley, and Joseph P. Earle. The witness said that the work done was legitimate and the price paid for it reasonable. He did not regard as opposed to public policy the listing of industrial stocks on the stock exchanges. Property represented by listed stocks could be realized upon more readily, and were therefore less subject to business reverses. Listed stocks are a sort of reserve investment and possess many advantages.

* * *

THE policy of the United States Rubber Co., said the witness, has been to produce all the goods that it can sell at a fair price, the directors considering it their duty to make all the money they lawfully can for their 6000 stockholders, and this can best be done by studying the interests of consumers by fixing prices as low as a good quality of product will permit. The New Brunswick Rubber Co.'s plant has been closed as a shoe factory, but it is at work producing tires. The Colchester plant has been closed, but the machinery was consolidated with the factory at Bristol. The only plant really closed has been that of the Boston Rubber Co. The testimony here was:

Q.—How much of the capital stock of your company has been issued for companies that have been closed?

A.—Less than 2 per cent. of the total capitalization of the United States Rubber Co., and the machinery in the principal plant closed has been removed to another point.

At times the production has been larger than the demand, in order that the working forces might be held together until the coming of better times. The United States company control about 65 or 75 per cent. of the rubber-shoe making capacity in the United States, and at times not more than 50 per cent. of this capacity has been utilized. But there must always be a larger total capacity than is required at any given time, that changes in the demand for boots and shoes, or an unusually heavy demand, may promptly be met. There may not be so many employés at work now as in 1892, because that was a prosperous year, while times are dull now and the season unfavorable. The list prices for rubber boots and shoes are lower than in 1892, though the manufacturers' prices are somewhat higher, owing to a revision of discounts. This has been justified by the continued higher price of raw materials and by the maintenance of a higher standard of product. There has been no decline in wages, and the witness thought that employment had been more steady than would have been the case with the factories working separately.

* * *

THERE was amusement for those in the audience who had any knowledge of the matters under investigation. Likewise amusement at times for any with ears to hear. Here, for instance, was the committee's idea of the mathematics of percentages. Treasurer Flint had testified that the company's factories had 65 per cent. of the total rubber-shoe capacity in the country, and later that certain factories on the list had been closed. The investigation proceeded:

Q.—What percentage of the business did these companies do? *A.*—About one-fifteenth of the whole.

Q.—So you have destroyed 25 per cent. of the total capacity, have you? *A.*—I said one-fifteenth of the whole. That wouldn't be 25 per cent.

Q.—Wouldn't that be 25 per cent. of 65 per cent? *A.*—No, it wouldn't.

"Yes, it would," said Chairman Lexow.

"No, it wouldn't," said Mr. Flint.

"Well, one-fifteenth of the whole," declared the senator, "would be 15 per cent."

"No, it wouldn't," said Mr. Flint.

"Yes, it would," said Mr. Lexow.

"I tell you it wouldn't," said Mr. Flint. And he went on and said: "Oh, we'll put it in a different way then. Instead of saying one-fifteenth of the whole, I will say that it was about 5 per cent. of the whole."

"Oh," said Chairman Lexow, "now you want to reduce the estimate from 15 per cent. to 5 per cent., do you?"

"I never said 15 per cent.," said Mr. Flint. "I said one-fifteenth."

And the day's session ended with this question still in dispute.

* * *

INCIDENTALLY, Mr. Flint expressed his views regarding the

economies possible through the centralization of labor and the use of labor-saving machinery by large accumulations of capital, as tending to bring about the industrial supremacy of the United States. Thus we are enabled, though paying higher wages than any other country, to produce many lines of goods which can be sold in foreign markets in competition with cheap labor. Here machinery is made to do the drudgery that falls abroad upon men and women. In consequence our working classes are rising to a higher standard of intelligence, so that the productive capacity *per capita* is increasing at a greater rate even than the increase in wages. An export trade is needed to give regular and full employment to our mills, since dull times are inevitable now and then, leading to a falling-off in the home demand. It is only by means of vast and complete industrial systems, said Mr. Flint, who is himself a large exporter of manufactures, that the fullest advantage can be taken of the export trade. THE MAN ABOUT TOWN.

INDIA-RUBBER CASES IN COURT.

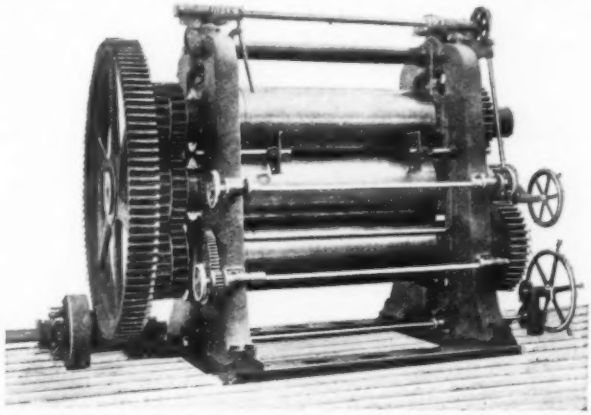
AN appeal has been take from Judge Grosscup's appointment in the United States circuit court in Chicago, of a receiver for C. H. Fargo & Co., the shoe house of that city, as reported in the last INDIA RUBBER WORLD. The appeal is taken by the United States Rubber Co., The L. Candee & Co., and the Metropolitan National Bank, the attaching creditors under the confession of judgment filed last August by Fargo & Co. The order of the court, in connection with the appointment of the receiver was that the proceeds of the sale last fall and all other effects of the firm should be divided among all the creditors of the firm alike.

In the United States circuit court at Baltimore on February 11, a verdict for $8259.78 was rendered by a jury in favor of the United States Rubber Co. against Louis A. Metzger. The suit was for $10,000 upon a guarantee given by Metzger for goods purchased from the plaintiff by the firm of Gutman & Metzger between April 1, 1895, and April 1, 1896. The amount recovered was the net claim after deducting a dividend from the assets of Gutman & Metzger, who went into insolvency April 15, 1896. The defendant, while acknowledging having written the guarantee, pleaded that it was not his deed because he had not sealed it, and that the seal was affixed by another after the paper left his possession. The witness to his signature, Samuel Gutman, ran away before the trial. The jury, however, decided that the facts were at variance with the defense. The ablest members of the Baltimore bar were retained and the case attracted much attention. Immediately afterward a second and similar case was tried by the same attorneys—that of the Woonsocket Rubber Co. against Louis A. Metzger for more than $7000. The jury in this case returned a sealed verdict for $2566.78.

The United States Rubber Co. have brought suit against Ann L. Conley, administratrix of the estate of Patrick J. Conley, formerly superintendent of the Woonsocket Rubber Co., for $10,000. When the Woonsocket company sold out it guaranteed its book accounts, which were very large, and the estate of Mr. Conley is being sued because he was among the signers of the guarantee. The suit is similar to one brought against Joseph Banigan, which has been reported already in THE INDIA RUBBER WORLD. It is stated in Woonsocket that the claim of the United States Rubber Co. is regarded as excessive by the old Woonsocket stockholders, (1) because interest has been charged on the unpaid book accounts, and (2) because it is felt that, with proper attention, more of them might have been collected.

A NEW THREE-ROLL CALENDER.

A NEW design in three-roll calenders, which by the way has been patented, is shown in the accompanying illustration. It will at once be seen to be far superior to the old style cornice framed machine, for two reasons: it offers no opportunity for dust or dirt to lodge above the rolls, and further casts no shadows either upon the rolls or the sheets. The frame looks lighter than the old type but in reality it is heavier, but the weight is put where it is most needed. A special feature of value is the arrangement by which the boxes may be removed from the frame and any one of the rolls taken out without removing the others. The design is not only artistic, but is thoroughly practical and all of the parts are finished in the most workmanlike manner. The machine has many devices which will meet with the approval of the calender man, for instance, the guide rods are so made as to slide back into the frame when extra wide sheets are run, and thus are out of the way. This calender is manufactured by the Farrel Foundry & Machine Co., Ansonia, Conn.



TRADE MARKS FOR CRUDE RUBBER.

THE rubber importing house of George A. Alden & Co., Boston, Mass., have for some time past been registering trade marks that various grades of rubber may be known by definite names, that may serve as a guarantee of quality. The list is as follows:

Anchor Brand,	Dogshead Brand,
Sun Brand,	Harp Brand,
Lighthouse Brand,	Sickle Brand,
One Wheel Brand,	Shamrock Brand,
Two Wheel Brand,	Lion Brand,
Crescent Brand,	Leáo Brand,
Globe Brand,	Three Star Brand,
Bell Brand,	Two Star Brand,"
Rose Brand,	Flag Brand,
Eagle Brand,	Star Brand.
Tiger Brand,	

In addition to these they have A, 1 and Horseshoe A, which they have used for a number of years.

JAMES DUNCAN, of a carriage-building firm of Adelaide, Australia, recently returned from a trip to the United States, where he made many purchases, instead of buying in England, as formerly. The Australian correspondent of the *Carriage Monthly* (Philadelphia) says: "He was also taken with American makes of rubber tires, which he considered the best made."

THE CRUDE INDIA-RUBBER MOVEMENT OF 1896.

ACCORDING to Reimers & Meyer's table of the exports of crude India-rubber from Pará and Manáos for 1896, it will be seen that the shipments again broke the record, the excess over the figures for the preceding year having been nearly 1000 tons. The receipts at Pará for the calendar year were 48,449 848 pounds, and the shipments somewhat less, or 47,623 484 pounds. The names of the leading exporters are given below, with the consignments for Europe and the United States, the figures representing pounds:

EXPORTERS.	United States	Europe.	Total.
*Pusinelli, Prüsse & Co.	7,195,946	6,690,328	13,886,274
Adelbert H. Alden	6,274,564	2,824,570	9,099.134
La Rocque, Da Costa & Co.	1,390,115	3,408,190	4,798,305
Rud. Zietz	589,947	4,149,273	4,739,220
Witt & Co.	1,004,415	1,700,562	2,704,977
R. F. Sears & Co.	1,286,075	688,893	1,974,968
Singlehurst, Brocklehurst & Co	402,107	988,432	1,390,539
De La Baume, Lajeunesse & Co.	785,034	323,377	1,108,411
Denis Crouan & Co.	22,487	1,043,684	1,066,171
B. A. Antunes & Co.	36,244	966,404	1,002,648
J. H. Andresen (Successors)	169,375	631,051	800,426
Marius & Levy		799.355	799.355
Kahn, Polack & Co.		366,078	366,078
Pires Teixeira & Co.	261,587	21,230	282,817
A. Fernandes & Co.		279,019	279.019
A. Berneaud & Co.	137.357	37,302	174.659
Freitas Sobrinhos & Co.	69.011	96,936	165,947
Edmund Reeks	85,340	13,620	98.960
P. Mouraille & Bro.	25,794	48,988	74,782
From Serpa		9.433	9.433
From Iquitos		556,404	556.404
Sundry Small Shippers	206,198	2,038,759	2,244.957
Total	19,941,596	27,681,888	47,623.484
Total, 1895	24,804,854	20,983,759	45,788 613
Total, 1894	23,062,386	19 869,306	42,931,692
Total, 1893	25,011,027	17,163,404	42.174,431
Total, 1892	25,202,008	15,603,324	40,805.332
Total, 1891	23,872,690	15,335,157	39,207,847
Total, 1890	21,137,177	15,004,652	36,141,829
Total, 1889	20,004,066	14,946,888	34,950,894

* Representing Reimers & Meyer (New York and Boston); Heilbut, Symons & Co. (London and Liverpool); and the Boston Rubber Shoe Co. (Boston).

In 1889 the percentage of Pará rubber going direct to Europe was only 42 per cent. The figures declined to 38 per cent. in 1892, and advanced in 1895 to 46 per cent., and last year to 58 per cent.

* * *

THE following statement of the Belgian imports and exports of crude India-rubber and Gutta-percha for the year 1896 has been prepared for THE INDIA RUBBER WORLD in the bureau of the ministry of foreign affairs at Brussels:

FROM—	Pounds.	TO—	Pounds.
Congo Free State	1,024,520	Germany	858,442
Great Britain	877,113	France	543,734
France	696,471	Great Britain	245,912
Germany	60,390	United States	157,441
Netherlands	60,253	Hamburg	129,816
United States	54,980	Netherlands	119,220
Singapore	52,360	Austria-Hungary	95,223
Guinea	43,959	Switzerland	80 066
Hamburg	39,340	Russia	71,660
Dutch East Indies	25,390	Italy	19,917
Other countries	39,773	Other countries	23,018
Total	2,974,549	Total	2,344,449
Value	$1,565,691.27	Value	$1,234,033.12

We last published a statement of this kind covering the figures for 1893, during which year the total of imports reached only 1,144.455 pounds, of which the Congo Free State contributed about one-third.

* * *

FROM the treasury department at Washington comes the revised official figures of the India-rubber movement for the United States for the calendar year 1896, which are presented below in comparison with the statistics for 1893, 1894, and 1895, the figures expressing pounds:

IMPORTS.	1893.	1894.	1895.	1896.
India-rubber	39,634,706	35,370,889	41,766,774	34.059,909
Gutta-percha	487,9"0	704.168	3,031,155	2,321,452
Total	40.122.676	36,075,057	44.797.929	36,381.361
India-rubber goods	$340,600	$303.781	$309.513	$277.580
Gutta-percha goods	50,001	53,173	75.962	82,128
Total	$ 90,601	$356.954	$385,475	$359.708
EXPORTS.				
Boots and shoes	$ 205,637	$ 211,393	$ 244.592	$ 168,131
All other	1,235.409	1.324,751	1,432,027	1,701,273
Total, domestic	$1 441,046	$1.536,144	$1.676.619	$1.869.404
Foreign manuf'tures	$ 169,622	$ 4,097	$ 7.574	$ 13,418
Crude India-rubber	1,846,727	1,615,076	2,217,697	1,687,546
Gutta-percha	19,616	464,602	47,859	
Total	1,866,343	2,079.678	2,265 556	1,687.54

With respect to the countries whence the crude India-rubber was imported the government statement supplies these figures, relating, of course, to pounds:

FROM—	1894.	1895.	1896.
United Kingdom	4.987,096	7,479,816	5,696,039
Germany	1,195,363	1,055,045	1,061,015
Other Europe	2,065,642	2,496,492	2,319,278
Mexico	129.088	158,449	114,010
Central America	1,116,547	1,391,002	1,127,580
West Indies [Venezuelan]	32,646	30,758	39 103
Brazil	23.642,155	26,603,173	21,933,727
Other South America	1,594.784	1,748,778	1,283,927
Africa	122,217	56,023	3,228
East Indies	461,166	736,149	471,378
Other Countries	24,185	11,089	10,624
Total India-rubber	35,370,889	41,766,774	34,059,909
Gutta-percha	704,108	3,031,155	2,321,452
Grand total	36,075.057	44,797,929	36,381,361

The value of domestic manufactures of India-rubber from the United States in 1896 exceeded the figures for 1895, in accordance with a rate of annual increase which has failed but once in the past ten years.

* * *

THE following expresses in tons the receipts of crude India-rubber in the United States and Europe during the calendar year 1896, according to a statistical statement issued by the Gould Commercial Co. (New York):

GRADES.	1895.			1896.		
	United States.	Europe	Total.	United States	Europe	Total.
Parás	10,527	7,345	17,872	10	8,858	19,264
Centrals	1,090	584	1,674		789	1,773
Africans	2,879	5,990	8,869	2,663	6,448	9,111
East Indian	1,465	841	2,306	617	776	1,393
Totals.	15,961	14,760	30.721	14.670	16,871	31,541

THE sales of all kinds of African rubber on the Liverpool market average about 520 tons (=1,164,800 pounds) per month. According to a leading house in the trade the receipts at Liverpool of African grades of rubber during 1896 were divided as follows:

	Pounds.
West Coast, including Niger, Capecoast, Saltpond, and Gambia	3 778,880
Lagos	4 704,000
Sierra Leone	1,951,040
South Coast	3,431,680
Total	13,865.600

Details now at hand indicate the following division of British imports of crude for 1896:

	Pounds.
Pará rubber received at London and Liverpool (private estimates)	20,973,120
African receipts at Liverpool, as above	13,865,600
African receipts at London and other ports, and rubber from Central America, East Indies and the Continent (estimated)	13,451,648
Total (custom house return)	48,290,368

WHAT THE SHOE-FACTORIES ARE DOING.

THE rubber-shoe factories resumed work on January 4, after a shut-down of ten days for the holidays, but have been running irregularly or on reduced time since, on account of the limited volume of orders due to the absence of snow. It was expected at Bristol that the factories of the National India-rubber Co. would be closed indefinitely during the last week in February. A later report, however, was that the receipt of orders for 4000 cases of tennis-shoes and 30,000 yards of carriage-cloth would postpone the necessity for shutting down. Superintendent Schlosser was quoted recently as saying that every available means is being employed to increase the work, and that agents are busy throughout the West and Southwest seeking new fields in which to place goods. The boot and shoe department of the American Rubber Co. (Cambridgeport, Mass.) was shut down at the close of work on February 13, for about ten days. A shut-down for an indefinite period began in the factory of the L. Candee & Co. (New Haven, Conn.) on February 6, but work was resumed on half time on March 1. The Woonsocket factory at Millville, Mass., stopped work on the same date, leaving the "Alice" mill in operation. The latter shut down on February 27, to start up on March 12. The United States Rubber Co.'s factory at New Brunswick, N. J., was shut down on January 16 and started again on March 3. The Meyer Rubber Co. shut down on the same date. The Goodyear's Metallic Rubber Shoe Co. (Naugatuck, Conn.) resumed work on March 1, after a six weeks' shut-down. The Goodyear's India Rubber Glove Manufacturing Co. have not been closed this season.

On the question of exempting the Woonsocket Rubber Co. from taxation on their factory property in excess of $100,000 valuation, the board of aldermen of Woonsocket have not yet reached a decision on the assessment for 1896. Despite the agreement of 1889, whereby the aldermen, at the request of the Business Men's Association, fixed the maximum assessment of the rubber factory at $100,000 for a period of fifteen years, the assessors have annually rated the property at its supposed full value, leaving the board of aldermen to give effect to the exemption by a special vote. The assessment for last year being $550,950, the company prayed for the usual abatement, which the board has postponed considering until satisfied as to the plans of the United States Rubber Co. with regard to giving work to the factory employés during the current winter. In September last Mayor George W. Greene, in his official capacity, addressed a letter to the rubber company, stating that, in case the factory was not operated more steadily, he should consider it his duty to recommend the repeal of the tax exemption. Mayor Greene presided at a recent meeting of the aldermen, at which he said that, while he favored continuing the abatement on the Woonsocket factory, he wished an assurance that it would be run through the winter. It was resolved that the board of aldermen should, as a committee, seek a conference with the rubber company, and President Samuel P. Colt has been quoted by the local newspapers as willing to meet the aldermen. The city clerk informs THE INDIA RUBBER WORLD that the matter has not yet been settled.

The American Wringer Co. of Woonsocket, have also been allowed an abatement, for some years past, on $41,500 of the assessment of their property, and this has also been postponed on the 1896 assessment, although the works have been operated steadily.

The Lawrence Felting Co. (Millville, Mass.), owned by the United States Rubber Co., will, it is reported, engage in the manufacture of the cashmerettes used by the factories of the latter company in making arctics. This is a class of goods woven of cotton warp and woolen filling. The amount of such material now bought from outside concerns is now reported at 500,000 yards per year, and its manufacture by the United States Rubber Co. might result in considerable economy. Some experiments in this direction were made under Mr. Banigan's orders in 1893, but without being carried to completion. The Hammond Buckle Co. is now owned by the United States Company, and if the change above suggested should be made, it would be a long step toward the manufacture by the big concern of all that goes into the make-up of rubber footwear. There have been about 100 hands employed at the Lawrence felting works, in which the annual shut down began on February 6.

The rubber-reclaiming plant of the Woonsocket Rubber Co. at Millville was closed permanently on February 17, with a view to the concentration of further work of this kind in the plant of the United States Rubber Co. at Naugatuck. It is intended to remove a portion of the machinery to Naugatuck and to replace it with an outfit for the manufacture of felt, the Lawrence felting works to be devoted to another purpose, as above indicated.

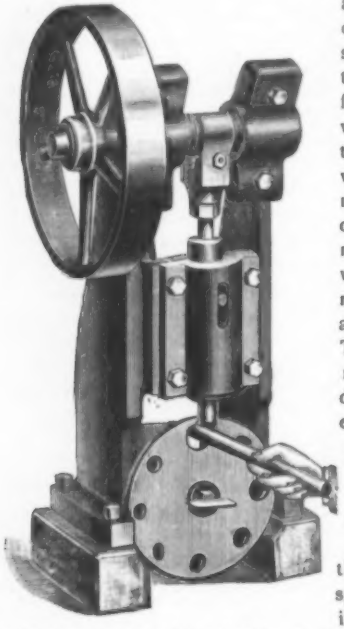
The factories of the Boston Rubber Shoe Co. have been running on reduced time, until the condition of business improves. The factory on Eastern avenue was shut down for two weeks on account of the holidays.

New England headquarters for the sale of the Joseph Banigan Rubber Co.'s new line of rubbers, have been opened at Nos. 96–98 High street, Boston, by C. L. Weaver & Co., who formerly handled the Woonsocket lines of goods at Detroit, Mich. Edward R. Rice will have charge of the western trade, with headquarters at Buffalo, N. Y., New York city and Chicago. There has been much activity of late in the shaping up of selling arrangements for the new line of goods, and it is announced that samples will be soon on exhibition.

The Liberty Rubber Shoe Co. (Setauket, L. I.) announce that they will make three grades of tennis goods this season. Their first grade, named "Liberty," is put up in cartons, has solid leather insoles, in oxfords and balmorals. The second grade, named "Giant," made in the same styles, has sheepskin insoles. The third brand is named "Jacob." Besides these the company make gymnasium shoes, each pair in a carton, solid leather insoles, white, black and brown, extra quality duck.

THE LATEST RUBBER-TUBING MACHINE.

A MACHINE has been invented lately for making tubing from calendered India-rubber, of a quality which it has been considered possible, hitherto, to make only by hand. Machines long have been in use for the manufacture of seamless rubber tubing for various purposes, but their employment has not been found practicable when the stock is of pure rubber. Thus seamless—*i. e.*, machine-made—tubing has been out of the question for the inner tubes of bicycle-tires, for elastic-band tubing, and for pure-gum tubing for nursing-bottles and other druggists' sundries. The "Faultless Tubing, Butting and Seaming Machine," which is illustrated on this page, is an automatic seaming-machine, for which two important advantages are claimed by its inventors: a very great cheapening of production by its use in place of hand labor, and a more even quality. Besides, practically continuous lengths of tubing can be produced, whereas under the present method the lengths are usually of three feet only, though some of the smaller sizes are made in twelve-foot lengths. A still further advantage is involved in the claim that the machine leaves a seam without stain from the cement used. With freshly-cut stock, a seam may be made without cement which will withstand as much strain or more than any other part of the tube. The second of the two machines made so far produces with equal facility either a butted or a lap seam, only a change of a small guide being necessary to change the character of the work.



The machine shown in the illustration occupies a space not exceeding 8×12 inches on the table on which it stands, with a height of about 26 inches. It combines, in marvelously little space, a die and mandrel—the latter being not more than four inches long—and hammer. Its operation is automatic in seaming the strips of rubber into tubes, in powdering them inside, and in pounding them continuously, no supervision being neccessary beyond the attendance of a boy to draw the completed tubing from the machine. The latter is one step which no machinery yet devised will perform satisfactorily, on account of the constant danger of the rubber being stretched. The machine is constructed with interchangeable dies, with a view to turning out tubing of any diameter desired, from ⅛ nch upward. There are two forms: one in which the dies are made separately, one being substituted for another when a change is desired, and one in which the dies are formed in a rotary disk, made to revolve for changes. Not only is the machine simple in detail, but its adjustment for different sizes of product involves little trouble and a very slight amount of time. The whole of a roll of stock—thirty-eight yards being a usual length —may be turned into a continuous length of tubing, and, if it is desired, roll can be joined to roll, indefinitely.

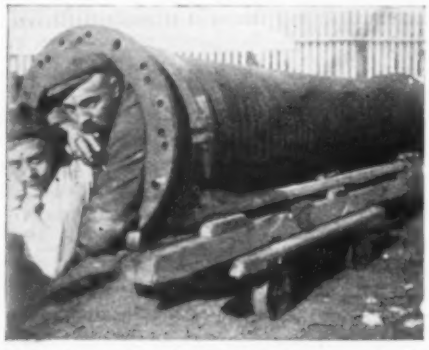
In a test of this machine when the first working model had only just been completed, it made into tubing, in a continuous run of seven hours, 104 twenty-four-yard rolls, or a total length of 7488 feet, being at the rate of 10,697 feet per working-day of ten hours. In hand-work, an experienced girl, working by the piece, does not expect to average, in a day of ten hours, more than 130 pieces one-yard in length, or 390 feet per day. According to these figures, one machine should equal the output of twenty-eight girls employed at seaming, besides which seven boys would be required—one for every four girls—to pound the tubing. The saving in working space alone in substituting one small machine, with a single attendant, for a force of thirty-five hand workers would be an important element in many factories, since it would mean a marked reduction in rent.

The original intention was to produce a machine for making plain tubing alone, but, as already indicated, lap-seam work has been done successfully by it. Not only this, but the mandrel and automatic hammer are so adjusted that they have been found adapted to the seaming of rubber goods in any form, as in the manufacture of water-bottles, tobacco-pouches, bulbs, balls, dress-shields, etc.

Application has been made at home and abroad for patents on this invention, which is to be manufactured by A. Dewes, No. 239 Centre street, New York.

A HUGE PIECE OF SUCTION HOSE.

THE illustration shows very vividly a length of large suction hose which was recently manufactured in New York. Few people outside of the mechanical rubber goods business understand how difficult it is to make hose of this size that will stand the severe work which is put upon it. The companies



who get the orders and make these goods always feel that they have achieved not only a commercial but an engineering triumph. The suction shown in the illustration was manufactured by the Manhattan Rubber Mfg. Co., 64 Cortlandt st., New York.

ANOTHER CRUDE-RUBBER COMPANY.

THE incorporation is reported of the Crude Rubber Co., with capital stock to be not less than $1,000,000 nor more than $5,000,000. The officers for the first year are George S. Dearborn (Rye, N. Y.), president; H. E. D. Jackson (New York), treasurer; and Charles M. Bull (Brooklyn), secretary. The president is the head of firm of Dearborn & Co., No. 104 Wall street, New York, who are shipping merchants and own a line of steamers to California. It is reported that the company will ship rubber from Pará to foreign countries, without entering United States markets or the manufacture of goods. They have a Virginia charter and are not yet fully organized.

A LATE BEGINNING IN GARDEN-HOSE.

THE season for garden-hose is rather late in beginning this year, as compared with former seasons, which is the more noticeable since stocks were well reduced at the end of last summer. But hesitancy in buying is by no means confined to garden-hose; this staple is merely showing the general conditions applying to the rubber goods trade. At least this is the testimony of most of the firms interviewed by THE INDIA RUBBER WORLD. On the other hand, however, the manager of an important house said: "We started off last spring with a rush in garden-hose and wound up with a very wet season, which left big stocks of goods to be worked off this spring, and this explains the backwardness of trade in this line." All of which suggests that this is a wide country, with an endless variety of weather conditions, and that the trade of one house may be largely confined to sections with more or less rain than the average. The interviewer met the manager of a western factory, who said that while the garden-hose trade was opening late with his house, it was not because of general conditions of business, as understood in the east. The people in the west simply were not ready to buy hose; when they began to want it, orders would come in. As one went farther from New York, he said, there was less tendency to become alarmed over such trivial events as the firing of gunboats on the shores of Crete, but people attended more closely to their legitimate business. He thought that, under the law of averages, the summer of 1897 would bring good weather for selling hose, and that the demand would be satisfactory at the right time.

Each year brings out a greater variety of garden-hose—in quality, weight, and everything else but size. With respect to diameter nothing new is seen. Plumbers and others who have to do with water-fixtures put in piping of a certain size, and the householder, when he comes to buy hose, must match the caliber of the pipes. But a single house this season has sent out samples of thirteen different grades of hose of ¾ inch size—each differing in quality somewhat from the others, and each differing likewise in price, the range in the latter respect being between 4 and 14 cents per foot, at wholesale. The intention evidently is to tempt buyers of every degree of buying capacity. Another manufacturer produces three grades of rubber and one of cotton garden-hose, each in nine different sizes, or 36 different items altogether. But some of these sizes are in demand only for a few special uses, so that a dealer may be considered well stocked without carrying more than two dozen different grades and sizes.

It is suggested by some of the large houses that there has been no decline so far this season in the prices of high-grade goods. There is a call for low-priced goods, but it is met in the main by products of correspondingly low quality. It cannot be denied, however, that there has been some tendency toward cutting prices, but it does not follow that sales will be larger in consequence. There are always people in the trade who, when they can sell goods in no other way, try the effect of lower prices. Such an example is apt to have followers, even if under protest, so that the pioneer in low prices doesn't get all the advantage—if there be any advantage—from the reduction. If everybody comes down in price to the same figure, no one firm has any more advantage than if all were charging high prices together. But low prices do not tempt most people to buy rubber goods who do not want or need them. Besides, the slight difference in prices of garden-hose cut no figure with the buyer; the manufacturer merely loses his profit in case he makes any sales, and needlessly, for whoever wants a reel of garden-hose will buy it, without considering a matter of a cent or two per foot. His chief consideration about prices is that he shall not be charged more for what he buys than his neighbor pays.

RANDOM NOTES FROM PARA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Extensive rubber forests lately discovered to exist in the region of Itacayuna, on the upper Tocantins, are being explored. Some specimens of the product, sent to the Pará department of public works, were tested at the public-service laboratory, and pronounced very similar to that known in the trade as "fine Pará" rubber. These specimens had been coagulated without smoking, but further particulars have not been secured.

The Jamamady Indians, who inhabit the left side of the river Purús from the Apituan to the Ihutanahan, according to the *Commercial do Amazonas*, recently attacked a small settlement of rubber-gatherers, barbarously killing 124 men, women, and children, and afterward looting the huts and burning them to the ground. It is supposed that this massacre was out of revenge for an attack recently made upon the same tribe of Indians, but with which the rubber-gatherers referred to had nothing to do. The Indians first attacked the men in the settlement, at work in the rubber forest, afterward going to the huts, in the ashes of which the charred bodies of the women and children were found. The only survivors were one Benedicto Ramada and his son, who happened to be out hunting.

The report of Senhor Pedro da Cunha, administrator of the "recebedoria," or tax-receiving office of the state of Pará, for the fiscal year 1895-96, fills a large pamphlet, gotten up attractively, and containing much material of interest regarding the productions of the Amazon valley, including a few pages on "borracha," the term here for India-rubber. The rubber statistics have mostly appeared in some form in THE INDIA RUBBER WORLD, but it may be worth while to quote a few summaries here for the period ending June 30, 1896. The rubber movement is credited to the various ports as follows:

	Pounds.
Pará	33,108,962
Manáos	13,012,038
Iquitos	238,968
Total	46,359,968

The classification and destination of the rubber exported was as follows, the details yielding an unimportant difference in totals:

	To America.	To Europe.	Total.
Fine (*fina*)	11,032,809	14 510,289	25,543,098
Medium (*entrefina*)	2,540,525	2,497,972	5,038,497
Coarse (*sernamby*)	6,603,249	5,190,719	11,793,968
Caucho	1,753,226	2,232,160	3,985,386
	21,929,809	24,431,140	46,360,949

The sources of the rubber supply are stated as shown in the next table, the total again showing a slight difference:

	Pounds.
Islands	17,415,783
Tapajos river	1,464,021
Amazonas	12,092,054
Madeira river	3,706,025
Juruá river	1,646,212
Purús river	3,971,748
Peru	2,038 262
Caucho, from various sources	3,958,295
Total	46,292 400

The increase during the crop year 1895-96 was larger than in several preceding years, though the rate has frequently been exceeded. In the past eighteen crop-years the annual percentage of increase of yield over the preceding crop has been:

In 1878-79.....	2.9%	In 1884-85.....	5.6%	In 1890-91.....	10.4%
In 1879-80.....	1.4%	In 1885-86.....	7.7%	In 1891-92.....	9.1%
In 1880-81.....	8.9%	In 1886-87.....	5.5%	In 1892-93.....	3. %
In 1881-82.....	10. %	In 1887-88.....	17.2%	In 1893-94.....	3.9%
In 1882-83.....	5.5%	In 1888 89.....	1.9%	In 1894 95 ...	(a)1.3%
In 1883-84.....	11.4%	In 1889-90....	(a)4.3%	In 1895 96.....	7.8%

(a) Decrease.

The India-rubber subject to the payment of the 21 per cent. *ad valorem* export tax at Pará for the fiscal year 1895-96 was classed as follows:

	Pounds.	Value (Reis).
Fine	9,727,082	26,563,600$492
Medium	2,203,735	6,840,451$041
Coarse	7,226,751	11,045,958$077
Total	19,157,568	44,350,009$610

Revenue from rubber, 1895-96. .....9,334,502$037
Revenue from rubber, 1894-95..... .. 7,863,948$453

"The German colony in this city," said *A Provincia do Para* of January 9, "is about to lose one of its most valued members; to-morrow Mr. F. Pusinelli, of the firm of Pusinelli, Prüsse & Co., German consul, and member of the commercial chamber in this state, embarks for Europe. Mr. Pusinelli has lived thirteen years in our midst, and in his official as well as social relations has always won general esteem,—always known how to preserve the 'grand old name of gentleman.' Mr. Pusinelli goes to London to manage there the immense commercial house of Heilbut, Symons & Co. His friends here will ever hold his name in grateful remembrance. To the Pará Orphan Asylum and to two hospitals he has left 15,000 milreis,—as he terms it, a little remembrance of the place in which he has passed the happiest hours of his life."

Mr. Herman Cmok, late of Hamburg, who succeeds to Mr. Pusinelli's place in the Pará offices, is quite a young man to assume so important responsibility. He also succeeds Mr. Pusinelli in the German and Austro-Hungarian consulates at Pará, in which he has done some important work already. He has established himself in the magnificent suburban residence occupied formerly by Mr. Pusinelli.

The government at Manáos issued a decree, on November 26, that on fine and medium rubber reaching that point from a long distance, the tax-receiving department should allow a deduction of 10 per cent. in weight.

Still another new steamer for the "king of rivers" arrived here from Glasgow on January 10. It is the *Ipixuna*, for the important rubber firm of Mello & Co. GRAO PARÁ.

Pará, Brazil, February 10, 1897.

A VEHICLE-TIRE COMPANY FAILS.

THE sheriff of New York county, on February 18, sold the effects of the Standard Tire Co., at No. 123 West Thirtieth street, for $440. This company was incorporated in January, 1896, under the laws of West Virginia, to manufacture a rubber-cushtoned steel vehicle-tire, described in THE INDIA RUBBER WORLD of September 10, last. It was capitalized at $1,000,000, of which it was reported that $15,000 was paid in. Howard M. Du Bois, was president and William H. Gray, secretary, and the company had offices at No. 150 Nassau street. On January 11, an assignment was made to William Dallas Goodwin, who later filed schedules showing: Liabilities, $17,032, nominal assets, $6089; actual assets, $4678. The sheriff had an attachment against the company for $220 in favor of John McCormick.

TRADE AND PERSONAL NOTES.

THE Union India Rubber Co. (New York) have applied to the supreme court for the voluntary dissolution of the corporation, and John E. Ward has been appointed referee, the order to show being set down for June 17 next. The proceedings are merely formal, the company having given up active business in 1888. They own valuable real estate in Harlem, the former location of their works, which for some years past has been leased to other concerns. The company dates from 1848, with a history which for a long while practically comprised the history of the rubber industry in America. The president of the company is Frederick M. Shepard, who is also president of the Goodyear Rubber Co. (New York and Middletown, Conn.), who have succeeded to the business of the Union Company.

=The firm of Butler Bros., of Denver, Col., on February 25 filed another chattel mortgage on their stock, it being for $24,000 and in favor of the United States Rubber Co. They had previously been closed out by other mortgagees.

=The Metropolitan Rubber Co. held their annual meeting on March 2 at Wallingford, Conn. The directors elected were: A. J. Tower and E. J. W. Morse, Boston; G. R. Eager and W. S. Tower, Newton, Mass.; C. A. Place, Brooklyn, N. Y., and W. B. Dowse, New York. The officers elected were: C. A. Place, president; W. B. Dowse, secretary; and A. J. Tower, treasurer.

=The Trenton Rubber Co., Trenton, N. J., have their New York office and ware rooms at 20 Warren street, New York. E. H. Garcin, the general manager of the company, is to be found at his office two or three days during the week.

=The Home Rubber Co. (Trenton, N. J.) have opened an elegant store at 165 Lake street, Chicago, where they will carry a full line of their mechanical rubber goods, tires, etc. The trade of the Home Rubber Co. has been very large in this section in the past, and the fact that they have a stock of goods for filling quick orders will be a distinct advantage both to them and their trade.

=The New York Belting and Packing Co. are in receipt of an order for 20,000 square feet of Interlocking Rubber Tiling. It is to be laid in a magnificent two-million-dollar school building, now in process of erection. The extreme durability, richness and noiselessness of the tiling are bringing it into strong favor with architects. Among other recent orders of large size are, another North river ferry boat, a second order for the American Line steamship *Paris*, and the main office of one of the new buildings in the Wall-street district.

=At the factory of the Hood Rubber Co. (Watertown, Mass.), on February 23, a fire caused by the explosion of a naphtha tank was put out by automatic sprinklers, with a loss of only $200.

=The Gutta Percha and Rubber Manufacturing Co. of Toronto, Limited, in their new boot and shoe plant, have a capacity of 4000 to 5000 pairs daily. They have issued announcements already for the coming season's trade. The superintendent of the new department is Samuel P. Langdon, formerly of the New Brunswick Rubber Co. (New Brunswick, N. J.), and it will not be surprising if he does something toward introducing below-the-border methods and styles into the Dominion.

=Gen. William H. Skirm has been elected president of the Empire Rubber Co. (Trenton, N. J.), succeeding Frank A. Magowan. The latter has not, however, retired from the board of directors, which remains unchanged.

=It escaped the eye of the man who talked so interestingly

and understandingly on lawn-sprinklers, that the Boston Woven Hose & Rubber Co. (Boston) possessed a department in metal-working that turned out thousands of these articles of lawn utility every season.

=Mr. William Morse, of the rubber-shoe jobbing trade in New York, together with Mrs. Morse, are in Florida, avoiding the inclement March weather farther north.

Add Rubber Scrap.

=A very neat little coin-pocketbook made of leather, and embossed with a fac-simile of a section of the Chase Tough Thread Tire, is something the L. C. Chase Co. (Boston) are giving away to their friends. It is good advertising.

=The Monarch Rubber Co. (Campello, Mass.) are said to be about entering the market as manufacturers of single tube tires.

=The Conant Rubber Co. (Boston, Mass.) have just put in one hundred new sewing machines for use in their mackintosh department.

=C. J. Bailey & Co. (22 Boylston street, Boston) have taken the New England agency of the Ideal tire, manufactured by the Ideal Rubber Co. (Brooklyn, N. Y.) They have also taken the Boston agency for the Wolff-American cycles. They have improvised a fine show room in the middle of their store and have already made a notable start in selling the '97 wheels.

=The Consolidated Rubber Works, Boston, are sending out an extremely neat little vestpocket calendar and stamp holder which is proving a remarkable advertising medium for their alligator and kangaroo tires. The booklet is unique in that it is bound in kangaroo hide with untrimmed edges and has really an exceedingly artistic effect.

=The Fairfield Rubber Co (Fairfield, Conn.) were reported recently to be running sixty hours per week and to be employing new hands.

=The Boston Woven Hose and Rubber Co. have increased their facilities by leasing part of a new building on an adjacent property. They have also obtained a permit to erect a small new building on their own premises.

=C. J. Bailey (Boston, Mass.), who is ever on the alert to add to the world's inventions of value, has brought out a hose-holder that is proving itself a rapid and popular seller.

=Mr. Chas. H. Till (Boston) has accepted the management of the Columbia Rubber Works Co. (New York.) Mr. Till has many warm friends in the mechanical goods trade in New York, and will no doubt welcome them at his new headquarters at 66 Reade street.

=Mr. C. H. Williams is traveling throughout the New England states handling the goods manufactured by the Trenton Rubber Co., Trenton, N. J.

=The wringer headquarters on Cornhill, Boston, known as "Prescott Bros." and owned by Mr. William Keyes, has lately been rearranged, new offices added and more room given to both the wringer department and to mechanical rubber goods.

=Mr. Geo. S. Andrus, Mgr. of the La Crosse Rubber Mills Co. (La Crosse, Wis.), during a recent trip East purchased a car-load of the machinery formerly operated by the Boston Rubber Co., Chelsea, Mass.

=Mr. J. O. Stokes, Treas. and Gen'l Mgr. of the Home Rubber Co. (Trenton, N. J.), is to be congratulated on his speedy recovery from a severe attack of grippe which came very near ending in pneumonia.

=The Enterprise Rubber Co. (Boston) are doing a fine business in pneumatic tires manufactured by the New Brunswick Tire Co., New Brunswick, N. J.

=At the annual meeting of the Rubber Manufacturers' Mutual Insurance Co., in Boston, on February 3, the old board of directors was reëlected. At a subsequent meeting of the board the Hon. E. S. Converse was continued as president and Benjamin F. Taft as vice-president, secretary, and treasurer.

=Clarence G. Ames, superintendent of the factory of The L. Candee & Co. (New Haven), is one of the new fire commissioners of New Haven. The *Palladium* says "he is an able man, has a clear understanding of municipal business, and will prove a good fire commissioner."

REVIEW OF THE INDIA RUBBER MARKET.

SINCE our last review the condition of the crude India-rubber market has been practically without change. There were indications, some three weeks ago, of an upward tendency in prices, but it did not long prevail, and our quotations for the principal grades to-day are the same as printed last month. But while an advance in quotations failed to occur, there is to be noted a greater firmness in the market, due, as is the similar situation in Europe, to the tone and position of the market at Pará. There have been no large transactions here in crude material of late, the various branches of rubber-manufacturing showing no increase in activity.

Our statistical showing, farther on, will indicate how far the receipts at Pará have continued to break all records. In former years such a condition, coupled with a slack demand in America, would have resulted without fail in lower quotations. But a new element now to be dealt with is the rapid rate of increase in recent years in the European consumption of India-rubber. The following comparison will sufficiently illustrate the tendency of things, showing the net imports of crude rubber, in pounds, in certain countries for two years past:

	1895.	1896.
Great Britain	16,147,040	21,920,080
Germany	10,909,360	14,019,720
France	7,695,226	11,564,300
Total	34,751,626	47,504,100

In addition to the arrivals from Pará during a month past, the *Hubert* is now almost due at New York, carrying about 500 tons, while the *Horatio* sailed ten days later with 200 tons.

Late mail advices from London report the clearing out of all the Balata in that market at 1s. 6⅛d. per pound.

The statistical position of Pará rubber in New York and elsewhere is as follows, the figures expressing tons of 1000 kilograms:

	Fine and Medium.	Coarse.	Totals.	Totals, 1896.	Totals. 1895.
Stock, January 1	280	73 =	353	250	566
Arrivals, February	1152	407 =	1559	845	896
Aggregating	1432	480 =	1912	1095	1462
Deliveries, February	1045	374 =	1419	835	730
Stock, February 28	387	106 =	493	260	732

	1897.	1896.	1895.
Stock in England, February 28	1205	866	960
Deliveries in England, February	950	800	460
Pará receipts, February	2800	2610	2520
Stock in Pará, February 28	860	520	1010
World's supply Feb. 28 (excluding Caucho)	4347	4348	5003
Pará receipts since July 1	17,250	15,900	15,145

In regard to the financial situation Albert B. B. Beers, broker in India-rubber and Commercial paper (No. 58 William street, New York), advises us as follows:

"Through February our money market has remained about

the same as at last report, the supply of desirable paper being less than the demand, and rates ruling at 4 @ 4½ per cent. for the best single and double names in the rubber line and 5 @ 6 per cent. for names not so well known and of lower grade. There is nothing at the present writing to warrant any change from the conditions now existing, although an improvement in general business would tend to stiffen rates, should it occur as is hoped and expected."

The latest quotations in the New York market are:

PARÁ.		
Islands, fine, new	80	@81
Islands, fine, old	none here	
Islands, coarse, new	45	@46
Islands, coarse, old	none here	
Upriver, fine, new	82½	@83½
Upriver, fine, old	87	@89
Upriver, coarse, new	52½	@54
Upriver, coarse, old	none here	
Caucho (Peruvian) sheet	40	@41
Caucho (Peruvian) strip	43	@44
Caucho (Peruvian) ball	49	@50

CENTRALS.		
Esmeralda, sausage	49	@50
Guayaquil, strip	35	@43
Nicaragua, scrap	47	
Nicaragua, sheet	none here	
Mangabeira, sheet	41	

AFRICAN.		
Thimbles	33½	@35
Tongues		@39
Sierra Leone	25	@52
Benguela		@50
Congo Ball	40	@42
Cameroon Ball	39	@40
Flake and Lumps	24	@25
Accra Flake	18	@20
Accra Buttons	47	@48
Accra Strips	51	@54
Lagos Buttons	43	@44
Lagos Strips	43	@44
Liberian Flake	30	@31
Madagascar, pinky	56	@58
Madagascar, black	42	@44
Mozambique, red ball		@
Mozambique, white ball		@

EAST INDIAN.		
Assam	42	@56
Borneo	26	@42

GUTTA-PERCHA.	
Fine grade	1.35
Medium	1.10
Hard white	85
Lower sorts	50
Balata	

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	7 $500	Upriver, fine	8 $150
Islands, coarse	3 $700	Upriver, coarse	5 $050

Exchange 8 3/16*d.*

THE ANTWERP RUBBER MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Since our report of January 25, about 80 tons of Congo rubber have been sold in this market at full prices, in some cases even slightly dearer than previously. Our principal classes fetched the following prices:

	Per Kilogram.	
Red Kassai	7.10@7.12½	francs
Black Kassai	6.35@5.40	francs
Equateur balls	6.22½@6.25	francs
Upper Congo balls	5.90@6.	francs
Mongalla balls	5.95	francs
Arruwinni balls	5.35	francs
Bussira balls	6.05	francs.

Arrivals consist of about 130 tons per steamer *Leopoldville* against 43½ tons for the same time last year), and 80 tons per the. *Edward Bohlen* (against 48 tons for the same time last year); or altogether about 210 tons, of various qualities, which will be sold by tender on March 4, 5, and 10. C. SCHMID & CO.

Antwerp, February 23, 1897.

IMPORTS FOM PARA.

THE receipts of India-rubber direct from Pará and Manáos at the port of New York since our last publication are reported in detail below, the figures referring to pounds:

February 15.—By the steamer *Sobralense*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co	398,400	82,100	132,100	40,000=	652,600
Reimers & Meyer	239,600	63,500	91,500	=	394,600
Boston Rubber Shoe Co.	90,000	26,000	12,900	10,500=	139,400
Sears & Co	49,000	19,500	33,700	=	102,200
Flint & Co	43,000	7,900	16,000	=	66,900
Lawrence Johnson & Co.	27,100	16,400	22,100	=	65,600
Otto G. Mayer & Co	23,200	4,900	14,500	=	42,600
Shipton Green	17,100	2,900	2,100	8,600=	30,700
P. Lima	7,500	300	4,700	=	12,500
K. Mandell & Co	3,300		1,400	1,100=	5,800
George G. Cowl	3,900	700	700	=	5,300
Albert T. Morse	2,900	300	600	=	3,800
Totals	905,000	224,500	332,300	60,200=	1,522,000

February 26.—By the steamer *Lisbonense*, from Pará:

New York Commercial Co.	310,400	67,100	110,400	51,000=	538,900
Reimers & Meyer	108,900	21,600	98,000	=	228,500
Boston Rubber Shoe Co.	38,700	14,700	11,700	13,500=	78,600
Sears & Co	37,600	16,900	15,700	300=	70,500
Lawrence Johnson & Co.	11,300	2,600	22,400	=	36,300
P. Lima	9,100	700	5,300	=	15,100
Albert T. Morse	11,100	700	1,200	=	13,000
Otto G. Mayer & Co			3,600	=	3,600
Totals	527,100	124,300	268,300	64,800=	984,500

	1897.	1896.	1895.
January Imports from Pará	1,393,500	2,718,300	2,869,500
February Imports	3,684,300	1,945,900	2,274,400

PARA RUBBER VIA EUROPE.

February 23.—By the steamer *Lucania*, from Liverpool:

Sgal & Co. (coarse)	5,000

February 27.—By the steamer *Britannic*, from Liverpool:

Albert T. Morse (fine)	5,000

March 1.—By the steamer *La Gasgogne*, from Havre:

Otto G. Mayer & Co. (fine)	6,000
Otto G. Mayer & Co. (medium)	3,000

March 4.—By the steamer *Majestic*, from Liverpool:

George A. Alden & Co. (fine)	34,000

OTHER NEW YORK ARRIVALS.

BELOW will be found in detail the imports at New York during February, 1897, of India-rubber from Mexico, Central America, and South America, other than Pará grades; also arrivals at New York of African and East Indian sorts:

CENTRALS.

FEB. 1.—By the *Alliança*=Colon:

	POUNDS.
A. Santos & Co	6,927
W. R. Grace & Co	5,815
H. Feltman & Co	4,760
Munoz & Espriella	3,532
Dumarest & Co	2,693
Roldan & Van Sickle	2,600
Frame, Alston & Co	2,200
Piza, Nephews & Co	2,074
J. Aparicio & Co	1,800
A. P. Strout	1,707
George R. Cottrell & Co	1,330
J. M. Ceballos & Co	1,288
G. Amsinck & Co	1,172
Flint, Eddy & Co	1,136
Lanman & Kemp	812
Anthony & Co	774
R. S. Beston & Co	141
Total	40,401

FEB. 1.—By the *Louisiana*=New Orleans:

Gillespie Bros	2,000

FEB. 5.—By the *Athos*=Cartagena:

D. A. De Lima & Co	500
For London	200
H. Marquardt & Co	200
Total	900

FEB. 5.—By the *Hevelius*=Pernambuco:

Allerton D. Hitch	1,200

FEB. 8.—By the *Kaffir Prince*=Pernambuco:

Otto G. Mayer & Co	6,800

FEB. 8.—By the *El Norte*=New Orleans:

Albert T. Morse	3,500

FEB. 8.—By the *M. R. Cuza*=Cuidal Bolivar:

Theband Brothers	2,000

FEB. 10.—By the *Ardanrose*=Greytown:

A. P. Strout	4,500
G. Amsinck & Co	4,000
Andreas & Co	1,000
For London	500
H. Marquardt & Co	200
J. W. Wilson & Co	300
Kunhardt & Co	1,000
Total	11,500

FEB. 11.—By the *El Mar*=New Orleans:

Albert T. Morse	13,000

FEB. 13.—By the *Valencia*=Colon:

H. Feltman & Co	6,000
A. P. Strout	3,545
Frame, Alston & Co	3,000
J. Brandon & Bros	2,527
R. F. Cornwell	1,634
Andreas & Co	1,521
W. Loaiza & Co	1,285
E. Steiger & Co	1,000
George R. Cottrell & Co	760
Total	21,272

FEB. 13.—By the *Marie*=Savanilla:

Kunhardt & Co	600
H. W. Peabody & Co	400
Total	1,000

FEB. 15.—By the *Carib*=Truxillo :

Eggers & Heinlein	4,000
Jose Agostini	700
H. W. Peabody & Co.	600
Total	5,300

FEB 16.—By the *Alene*=Greytown :

A. P. Strout	2,300
Dumarest & Co.	1,100
Ellinger Bros	1,000
Lanman & Kemp	700
Total	5,100

FEB. 17.—By the *City of Washington*=Mexico :

Jose Ware	1,000
E. Steiger & Co.	700
E. N. Tibbals	200
Total	1,900

FEB. 18.—By the *Nanna*=Pernambuco :

A. D. Hitch	800

FEB. 19.—By the *El Monte*=New Orleans :

A. T. Morse	3,500

FEB. 20.—By the *Ravensdale*=Cape Gracias :

Eggers & Heinlein	3,500
Samper & Jimenez	2,000
W. R. Grace & Co.	500
Total	6,000

FEB. 23.—By the *St. Paul*=Southampton :

Reimers & Meyer	1,500

FEB. 23.—By the *Altai*=Cartagena ;

Richardo Alence	3,500
G. Amsinck & Co	3,000
H. W. Peabody & Co.	200
Total.	6,700

FEB. 23.—By the *Advance*=Colon :

Frame Alston & Co.	3,400
A. Santos & Co.	3,552
W. R. Grace & Co.	3,154
Dumarest & Co	2,825
J. Aparicio & Co.	2,194
Geo. R. Cottrell & Co.	1,500
A. M. Capen's Sons	1,330
Roldan & Van Sickle	1 100
H. Feltman & Co.	678
J. Brandon & Bros.	450
Hoadley & Co	370
R. S. Beston & Co	131
Total.	20,685

Total Centrals for February. 154,858
Total for January. 255,082

AFRICANS.

FEB. 1.—By the *Umbria*=Liverpool :

	POUNDS.
Reimers & Meyer	97,200
George A. Alden & Co.	27,500
Sgal & Co	10,000
Total.	134,700

FEB. 1.—By the *Massachusetts*=London :

Reimers & Meyer	11,700

FEB. 1.—By the *Armenia*=Hamburg :

Reimers & Meyer	35,000

FEB. 3.—By the *Kensington*=Antwerp :

Otto G. Mayer & Co	11,800

FEB. 4.—By the *Majestic*=Liverpool :

George A. Alden & Co.	27,400

FEB. 8.—By the *Aurania*=Liverpool :

George A. Alden & Co.	41,200
Reimers & Meyer	52,300
Sgal & Co	10,400
A. T. Morse	11,700
Otto G. Mayer & Co.	11,200
Total.	126,600

FEB. 10.—By the *Westernland*=Antwerp :

Otto G. Mayer & Co.	20,600

FEB. 11.—By the *Palatia*=Hamburg :

Reimers & Meyer	12,800

FEB. 15.—By the *Servia*=Liverpool :

George A. Alden & Co.	59,200
William A. Brown & Co.	18,000
Reimers & Meyer	10,200
A. T. Morse	9,000
Sgal & Co.	7,800
Total	104,200

FEB. 18.—By the *Southwark*=Antwerp :

Otto G. Mayer & Co.	13,200
A. T. Morse.	10,000
Total.	23,200

FEB 19.—By the *Patria*=Hamburg :

A. T. Morse.	1,700

FEB. 23.—By the *Adriatic*=Liverpool :

Otto G. Mayer & Co.	7,100

FEB. 23.—By the *Lucania*=Liverpool :

George A. Alden & Co.	72,800
Sgal & Co.	8,000
Reimers & Meyer	51,000
Albert T. Morse	1,500
Total.	133,300

FEB. 23.—By the *St. Paul*=Southampton :

Reimers & Meyer	15,100

FEB. 23.—By the *Prussia*=Hamburg :

George A. Alden & Co.	3,700
A. T. Morse.	3,800
Total.	7,500

FEB. 27.—By the *Phœnicia*=Hamburg :

George A. Alden & Co.	10,600
Reimers & Meyer	9,000
Windmuller & Roelker	1,900
Total	21,500

FEB. 27.—By the *Britannic*=Liverpool :

Reimers & Meyer	25,000
Sgal & Co.	12,000
George A. Alden & Co.	6,500
Total	43,500

Total Africans for February. 737,700
Total for January. 699,000

EAST INDIAN.

FEB. 1.—By the *Massachusetts*=London :

	POUNDS.
Reimers & Meyer (Pontianak)	6,000

FEB. 6.—By the *Glengyle*=Singapore :

Reimers & Meyer (Pontianak)	28,500

FEB. 10.—By the *Manitoba*=London :

Reimers & Meyer	19,100

FEB. 23.—By the *St. Paul*=Southampton :

Reimers & Meyer	5,000

FEB. 25.—By the *Radnorshire*=Singapore :

Reimers & Meyer—(Pontianak)	22,000

Total East Indian for February. 80,600
Total for January. 178,000

RECAPITULATION.

	POUNDS.
Pará—direct imports	3,684,300
Pará—via Europe	53,000
Centrals	154,858
Africans	737,700
East Indian	80,600
Total at New York for February	4,710,458
Total for January	2,668,182

JANUARY EXPORTS OF INDIA-RUBBER FROM PARA.

[NOTE.—The figures denote weights in Kilograms.]

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL.
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Pusinelli, Prüsse & Co	104,613	32,625	80,968	38,399	256,605	155,720	40,970	58,980	600	256,270	512,875
Adelbert H. Alden	134,702	31,137	60,586	40,090	266,515	53,720	14,280	54,900	—	122,900	389,415
La Rocque da Costa & Co.	7,650	6,362	35,030	—	49,042	95,386	10,556	31,642	—	137,584	186,626
Rud. Zietz	—	—	9,160	—	9,160	73,420	10,470	27,605	520	112,015	121,175
B. A. Antunes & Co	13,260	8,330	2,240	—	23,830	24,315	9,446	10,856	122	44,739	68,569
Suarez & Co.	—	—	—	—	—	46,610	8,964	8,947	1,725	66,246	66,246
R. F. Sears & Co.	14,332	2,817	3,679	11,835	32,663	1,600	340	—	—	1,940	34,603
Denis Crouan & Co.	—	—	7,434	—	7,434	18,530	5,440	2,306	—	26,276	33,710
Pires, Teixeira & Co	6,035	170	5,110	—	11,315	945	117	400	—	1,462	12,777
A. Berneaud & Co.	6,290	340	1,930	—	8,560	—	—	—	—	—	8,560
P. Mourraille & Bro.	—	—	—	—	—	4,130	—	2,500	—	6,630	6,630
Sundry small shippers	—	—	3,600	—	3,600	64,190	8,350	12,840	—	85,380	88,980
Direct from Manáos	238,285	53,977	53,506	50,462	396,230	327,375	87,008	123,984	56,681	595,048	991,278
Total	525,167	135,758	263,243	140,786	1,064,954	865,941	195,941	334,960	59,648	1,456,490	2,521,444
Total for December	610,834	160,540	245,863	30,748	1,047,985	1,053,749	202,388	387,083	119,799	1,763,019	2,811,004
Total for November	618,969	157,617	316,117	11,033	1,103,736	689,706	161,835	269,406	22,928	1,143,875	2,247,611
Total for October	824,945	159,242	229,858	41,209	1,255,254	433,403	79,221	262,319	5,280	780,223	2,035,477
Total for September	623,393	134,616	206,244	107,886	1,072,139	336,074	67,303	178,755	10,393	592,525	1,664,664
Total for August	131,233	27,295	111,077	40,462	310,517	505,308	86,583	209,855	49,956	851,702	1,162,219
Total for July	116,346	33,338	106,048	34,653	290,385	270,233	35,210	125,824	93,293	524,560	814,945
Total for the crop year	3,450,887	808,406	1,478,450	406,777	6,144,520	4,154,474	828,481	1,768,202	361,297	7,112,454	13,256,974

Free Want Department.

RUBBER MACHINERY FOR SALE.—But very little used. Just as good as new. Several 14″ × 40″ grinders complete. Two large new Rolls 22″ × 63″. Several smaller Rolls. One large Sole Cutter. Address R. S. L. Co., P. O. Box 2723, Boston, Mass. (Mch.)

WANTED.—Chicago agency for bicycle tire. Big sales guaranteed. Best of bank and commercial references. Address AGENCY, care of INDIA RUBBER WORLD.

WANTED for season of 1897, 50,000 cheap Bicycle Tires, f.o.b. Chicago. Spot cash. Hayes & Tracey, 15 Wabash Ave., Chicago, Ill. (Mch.)

WANTED.—A position by a young man who has had practical experience in the rubber department of a very large firm in England. Has also full knowledge of the manufacture of the original golf ball. Best of references. Address P. O. Box 146, Chicopee Falls, Mass. (Mch.)

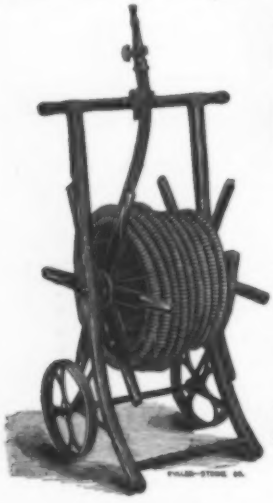
WANTED.—A position by a man with eight years' experience in a rubber factory as a mill man. Can run a tubing machine and make up goods in a mechanical room. Can furnish best of references to that effect. Address TUBING, care of INDIA RUBBER WORLD. (Mch.)

WANTED.—A man thoroughly competent to run a press room on general rubber mould work. Address V. G. G., care of INDIA RUBBER WORLD. (Mch.)

WANTED.—Superintendent for insulated wire factory. Must understand thoroughly the manufacture of rubber and paper covered wire. Communications will be treated confidentially. Address INSULATED, care of INDIA RUBBER WORLD. (Mch.)

WANTED.—A good second-hand tubing machine that will take a 3 inch die. Address CONDUIT, care of INDIA RUBBER WORLD.

WANTED.—Small vulcanizer about 18″ diameter, 3 feet long, in perfect condition New Jersey Rubber Co., Lambertville, N. J. (Mch.)



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